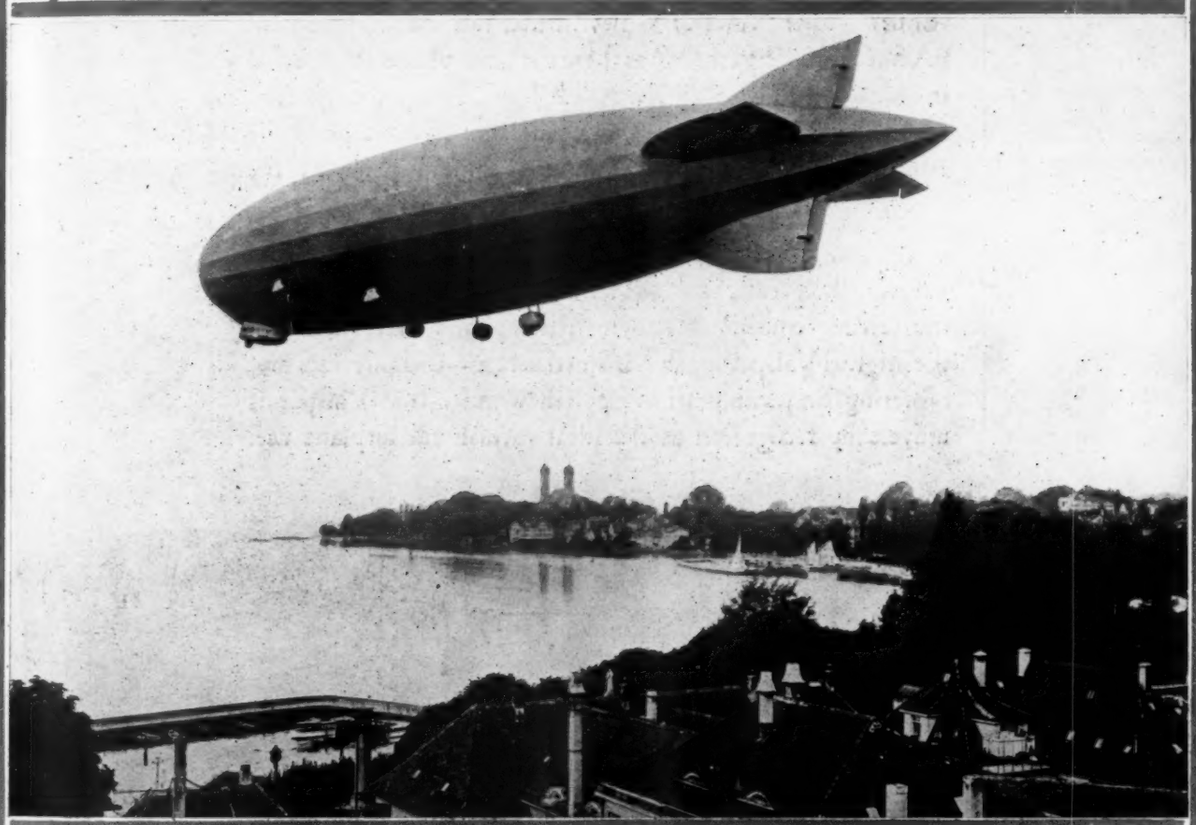
AVIATION

The Oldest American Aeronautical Magazine

OCTOBER 6, 1924 Issued Weekly PRICE 10 CENTS



The Zeppelin airship ZR3 on her trial flight over Lake Constance

P. & A. Photos

VOLUME XVII

NUMBER 14

SPECIAL FEATURES

IMPRESSION OF AVIATION IN AMERICA

RESULTS OF FRENCH PARACHUTE COMPETITION

ROHRBACH GIANT MONOPLANE FLYING BOAT DESCRIBED

GARDNER PUBLISHING CO., INC.
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK

Entered as Second-Class Matter, Nov. 22, 1920, at the Post Office at Highland, N. Y. under Act of March 3, 1879.

'Round the world with Valspar!

AMERICA'S air pilgrims were coming. At Mitchel Field, Long Island, a great crowd assembled to greet them. As the planes roared overhead, says the New York *World* (September 9), the Prince of Wales turned to Admiral Plunkett. "A fine flight," he said. "Are these the same planes that circled the world?" The Admiral nodded. "The same engines?" asked the Prince. "Well, some parts are new," replied the Admiral. "But the bodies are the same?" persisted the Prince. "Yes, the bodies are the same."

Of course. The bodies of these sturdy Douglas biplanes were finished from stem to stern with Valspar! And despite the terrible conditions to which the planes were subjected, the original Valspar finish remained intact—without cracking, blistering or turning white. Small wonder that Valspar is universally recognized as the ideal varnish for airplane use.

VALENTINE'S
VALSPAR
The Varnish That Won't Turn White

Crowds greet the Round-the-world planes at Boston. Above—The fliers and General Patrick at Mitchel Field.

Photos by Underwood & Underwood and Int. News Reel.

OCTOBER 6, 1924

AVIATION

VOL. XVII. NO. 14

Published every Monday

CONTENTS

Editorials	1081	Raising a Moot Point	1087
Impression of Aviation in America	1082	Japan Looks Aloft	1087
What Is the Use of Air Records ?	1083	French Parachute Competition	1088
The Rohrbach Ro II Twin-Engined Flying Boat	1084	Air Mail Speeds Foreign Letters	1088
Air Mail Helps Agricultural Department	1085	American Equipment Wanted Abroad	1088
Government Bids and Orders	1086	American World Flight Completed	1089
Regarding Air Expenditures	1086	Airports and Airways	1090
The New Army Air Transports	1087	United States Air Forces	1092

GARDNER PUBLISHING COMPANY, Inc., *Publishers*

GENERAL AND EDITORIAL ROOMS: 225 FOURTH AVENUE, NEW YORK

Publication office

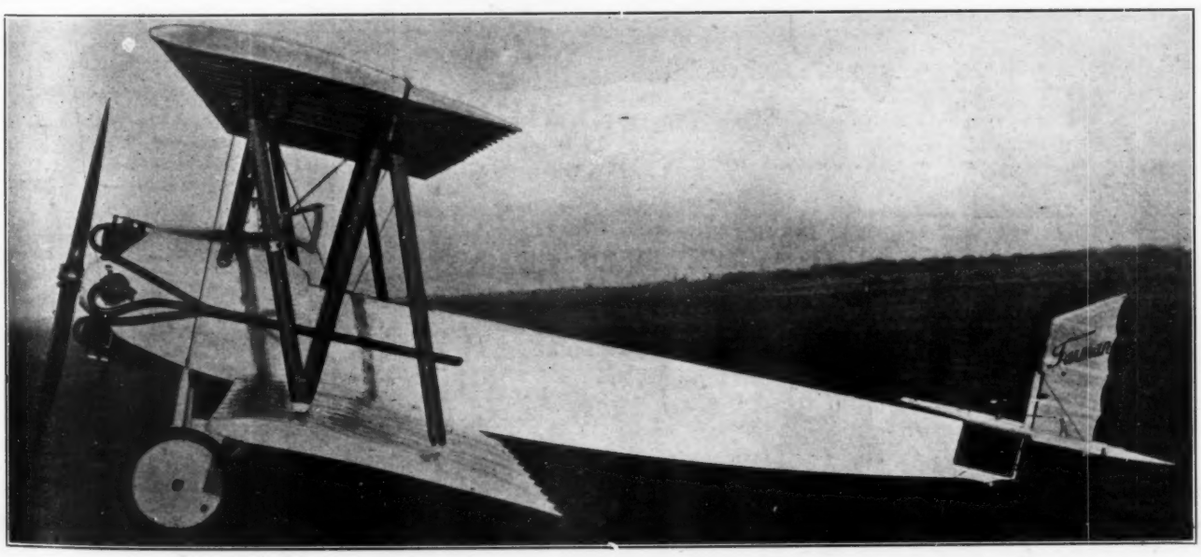
HIGHLAND, N. Y.

Subscription price: Four dollars per year. Single copies ten cents. Canada, five dollars. Foreign, six dollars a year. *Copyright 1924, by the Gardner Publishing Company.*

Issued every Monday. Forms close ten days previously. Entered as second-class matter Nov. 22, 1920, at the Post Office at Highland, N. Y., under act of March 3, 1879.

FARMAN

SPORT PLANES



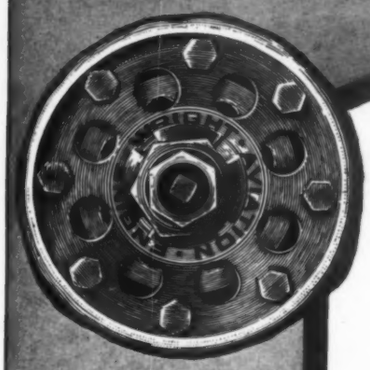
FOR THE PILOT OR SPORTSMAN WHO WISHES THE BEST

Imported from France, where they are built to your order in the Largest Aircraft Factory in the World.

1924 MODELS $4850.00 UP, DELIVERED PHILADELPHIA

WALLACE KELLETT CO. INC.

ATLANTIC BUILDING PHILADELPHIA, PENNA.



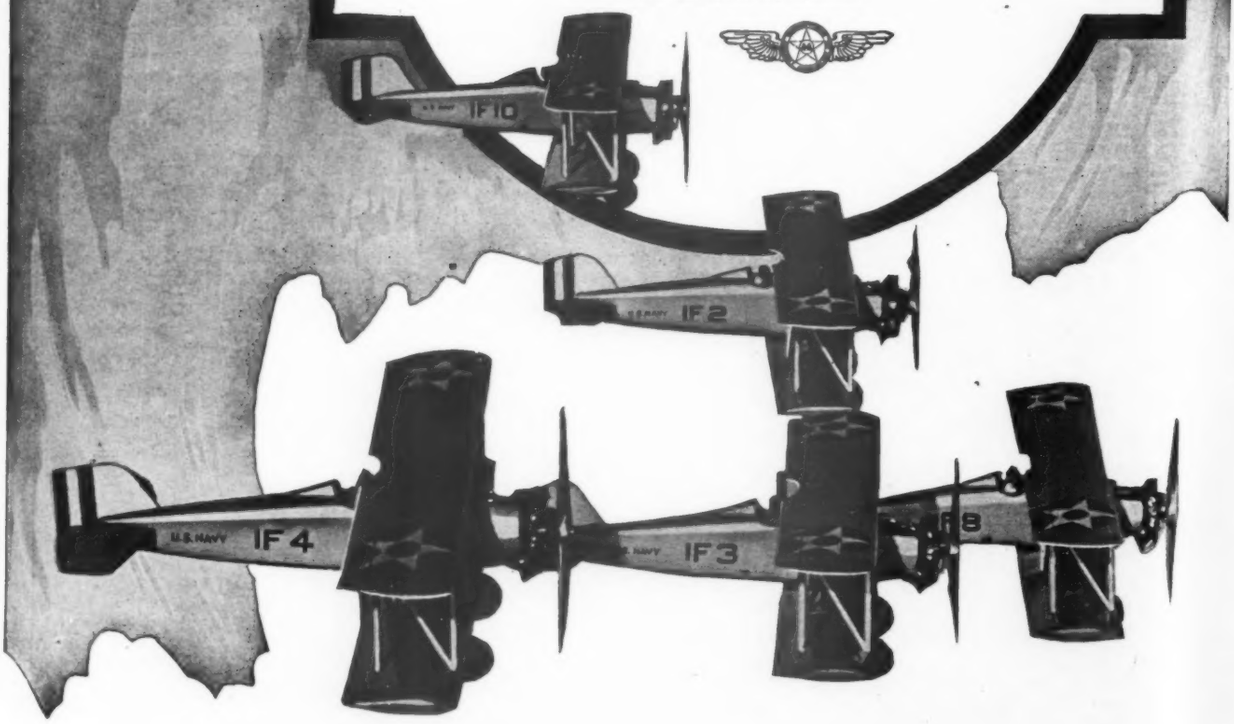
The Identification of Incomparable Service

WRIGHT leadership has been a tangible fact in aviation since its inception twenty years ago.

Sound aeronautical engineering practice and elaborate facilities for field and laboratory research has maintained this position through the years that have followed, in addition to the priceless opportunity of manufacturing for war production in great quantity.

The Wright Organization is committed to a continuation of its efforts in the development of the flying art.

WRIGHT AERONAUTICAL CORPORATION
Paterson, N. J., U.S.A.



WRIGHT AIRCRAFT AND ENGINES

L. D. GARDNER
PRESIDENT

L. D WEBSTER
TREASURER

GEORGE NEWBOLD
BUSINESS MANAGER

AVIATION

LADISLAS D'ORCY
EDITOR

VIRGINIUS E. CLARK
EDWARD P. WARNER
RALPH H. UPSON
EDMUND T. ALLEN
CONTRIBUTING EDITORS

VOL. XVII OCTOBER 6, 1924 No. 14

The Perfect Ending

WHEN the Round the World Fliers landed at Boston, the general impression prevailed that the great achievement, was for all purposes of a practical kind, completed. The trip to the starting point at Seattle was more or less a continuous reception. It should not be overlooked that a cross-country trip of three thousand miles with three planes that had been exposed to every kind of weather for six months, is a triumph in itself.

The congratulatory message sent by the President to the fliers at the conclusion of the trip indicating that he would recommend to Congress that some recognition be given to the men who have made the trip will bring up the whole question of the single list of army officers. The whole system of promotion in the Army is based on age and length of service. As the Infantry, Cavalry, Ordnance and Air Service officers are all on a "single list," and even the President lacks the power to make exceptional promotions, the predicament of the Air Service is unfortunate. Most of the younger officers took a longer course of training than officers of other branches and therefore were not commissioned at as early a date They, therefore, are in an almost hopeless position as far as promotion is concerned while in their best flying years.

The Air Service is essentially a young man's service. The pilots are encountering in their day's work dangers equal to those in war time, and yet they cannot hope to have any recognition until they begin to get hardening of the flying arteries. If President Coolidge wants to show how greatly he appreciates the success of the Around the World Flight he can bring to the attention of Congress at this time the special need of the Air Service for a separate list the same as the Army Medical Department. The World Flight was a joint effort of the whole Air Service. In no way could the success of the flight be recognized more adequately than by making it possible for exceptional Air Service officers to be promoted for brilliant achievement.

Naming Airplane Types

FROM the favorable response that has been received from the enquiry regarding a more sensible system of naming planes, AVIATION hopes that it has started a movement toward a clearer aircraft type nomenclature.

An Air Service officer who occupies a position of importance in aeronautical engineering writes that he will urge every manufacturer who does business with the government to give his plane some name which fits it. Even as well informed an observer as he has difficulty in reading reports which refer to machines by letters and numbers jumbled together.

AVIATION hopes that manufacturers will see the advantage to themselves, the government and the public of this suggestion, and give their type planes names that will easily identify them.

Civilian Contributions

IT is generally considered that civil aviation in this country has contributed little to the design and development of airplanes. Naturally the Army and Navy, with their great appropriations, do the majority of development work, but there are certain exceptions which are really noteworthy.

Take the matter of the flying boat. This is a type of craft which has proved its usefulness and which all foreign governments are still working on. Since the war, however, the Navy has done practically no development along this line. True, they have put a modern wing and larger motors on a war type hull, but this is hardly a great step in advance.

Civilian aviation, on the other hand, has produced four flying boats, all of them with metal covered hulls, and three of them at least are quite radical departures from previous types either in this country or abroad. All four machines have had considerable success or at least success enough to give valuable data for the development of new types.

First came the Loening Air Yacht which was primarily designed and first used for sport purposes. This Liberty motored monoplane carries four passengers and has a high speed of 120 mi./hr., and it broke the world's altitude record for a flying boat carrying passengers.

Next came the Aeromarine 7-passenger flying boat whose all-metal hull has offered convincing proof to the United states of the advantages of this type of construction. The Aeromarine Model EO has proved that a flying boat with excellent flying qualities can be built to carry three passengers with a 75 hp. motor.

Lastly, and undoubtedly the most radical of all, comes the all-metal flying boat built to the order of Mr. Vanderbilt by Messrs. Booth and Thurston. This ship is built primarily for speed, and its construction is one of great interest to all aeronautical engineers.

These four contributions to the science of aeronautical engineering in one particular field of proved usefulness show that civil flying has become and will continue to be of real value to aircraft construction. When the stocks of surplus war material are exhausted, civilian aviation's contribution to the development of aeronautics will be still more pronounced. When air transport lines are established on a competitive basis, the management must demand constantly better equipment so as to keep abreast of other companies, and there will be a rapid development along very valuable lines.

Impression of Aviation in America

By C. G. GREY

Editor of *The Aeroplane*, London

There are two ways of writing about a country of which one has not the honour of being a citizen. One is to go there for five minutes and then write all about it, on the principle of the fool who rushes in where angels fear to tread. The other is to live there for years and years and years and then write a long book to explain why one knows nothing about the country or its people and their manners (if any) or customs.

A little knowledge is a dangerous thing. So having no knowledge at all of America one cannot be in any danger of saying or writing the wrong thing in recording some flash-light impressions gathered in the few days during which one has fallen among friends—though perhaps *some* Government officials might call them thieves—in the American Aircraft Industry.

During those few days one has met men of all sorts of interest in the Industry. Some of them have directly and even bitterly opposed interests. Consequently one has a kind of hazy composite photograph of the Industry as a whole.

From the purely personal point of view it is a singularly pleasing photograph—which one would like to have framed and take home to hang in the place of honour in the office of *The Aeroplane*. For one and all have gone out of their way to make one feel at home and to tell one to make oneself at home.

And one has in fact felt absolutely at home, partly because many of the members of the Industry are old friends, partly because one has heard so much about those whom one had not previously met, but more especially because at bottom there is no essential difference between the American aircraft manufacturer and the English manufacturer. They speak the same language mentally and morally as well as linguistically.

There is a foolish old story of a nurse who remarked of twins—"Willie and Johnny are very much alike, especially Johnny." Well, that is the sort of likeness there is between the American Aircraft Industry and the British Industry. That is to say the American Industry is exactly like what the British Industry was before we had a perfectly good Air Ministry to foster the production of British aircraft and to see that everybody in the Industry gets fair play and is kept reasonably busy.

No Aviation Policy

And right here one wants to put on record what one believes to be the matter with the American Industry and with American Aviation in general. It is not an original idea—for thank Heaven one has never in one's life had an original idea. It is just what one has gathered from general talk with the people who know.

The trouble with American Aviation is that the Government of the United States has no sort of Aviation Policy, continuous, intermittent, spasmodic or any other sort. Aviation is nobody's child. Like Topsy, it has just growed. And it is suffering badly from malnutrition.

Briefly the state of affair may be catalogued thus:— (A) The Army, the Senior Service (barring, historically, the Marine Corps which is now unfortunately more or less dominated by the Navy) has the makings of a very fine Air Service. The officers and men are keen. The pilots are magnificent—as is shown by the records they have made. But, like our own Royal Air Force, they are mostly equipped with obsolete war-time aircraft. And they do not seem to have much chance of getting anything else.

The Army seems to suffer from a place called McCook Field, which appears to be a combination of our Royal Aircraft Establishment at Farnborough and the assorted sub-departments of the Air Ministry's Technical Department (which are now also at Farnborough and have taken on the high-brow attitude of the R.A.F.) Like the R.A.F., McCook Field costs millions of money (dollars or pounds) and produces nothing.

Of course nobody would be more annoyed than the Industries would be if McCook Field or the R.A.F. did produce anything. The annoyance would be justifiable, for a Government establishment which produces something is a direct competitor of the Industry. And all History teaches that Government production is the least efficient, most expensive, and least progressive way of producing.

But the point is that, like the R.A.F., McCook Field spends good money which if it were allowed to the Industry would provide the flying personnel with better aircraft and more of them.

It is true that McCook Field has carried out a number of highly interesting experiments. But these same experiments could have been made at much less cost by the various firms which have research organizations of their own. And being done in competition between the various firms the research work would proceed much more quickly than under the leisurely conditions of a Government establishment where so much time is occupied in finding work to do.

Furthermore, McCook Field, still more like our R.A.F., cramps the style of Industrial firms by delay in approving or disapproving trade designs and so delaying the placing of orders and consequent organisation for output.

Method of Purchase

But the chief trouble of all is the method of purchase. When at last a trade design is approved and somebody who has the necessary authority decides to order that design, instead of orders for that particular aeroplane being given to the firm which designed it and instead of agreeing with the firm a price which is high enough to cover experimental and designing costs, the order is put up to open tender. The result has been in the past that small firms or reckless firms, without any research organisation or design departments have butted in and have tendered for the contracts at prices which have meant a dead loss to them.

Several firms have gone broke in the process—and a good job too. But the evil is much more far-reaching than that. It means that the firms which have spent money on arriving at those designs are left without orders and have no income with which to produce fresh designs. And that means absolute stagnation to all progress.

There is yet another evil which has killed progress, just as it nearly killed progress in England some years ago. When a firm gets an order it just gets that order and nothing more. While the order is being filled the works are in full blast. As soon as the order is finished the works shut down flat and the specially trained personnel are dispersed.

The Preferred List

There is nobody in the Government, apparently, who has the power or the will to lay down, as the Air Ministry has done in England, a definite policy that so many firms, each of which has proved its ability to produce good reliable aircraft, shall be kept in existence and in continual employment at a reasonably paying price.

The Air Ministry has decided that some twenty firms have proved that they are worth keeping alive. When one of these firms produces an aeroplane which is worth putting into production in quantities, a price is agreed with that firm for a definite number. And in order to keep alive the firms whose designs have not been accepted, or whose shops are only partly occupied by other experimental types, the original designing firm is asked by the Air Ministry to place among its poorer brethren sub-contracts for part of its own big order.

The scheme works admirably. Every firm is kept moderately busy. And the Directors can be sure that when they have the wit to bring out a sufficiently advanced design, *their* firm will get the next big order and their competitors will have the sub-contracts. And, be it noted, the designing firm itself

places the sub-contracts and is responsible for the maintenance of its own standard of workmanship. The Air Ministry does not interfere between contractor and sub-contractor. And so the salvation of the Industry is in its own hands.

Also the Air Ministry takes particular trouble to keep on placing orders in as regular rotation as possible so that as one contract passes through the shops another one is coming along. Thus is avoided that awkward pause when a plant is shut down pending starting work on a new contract.

That is one of the benefits of having an Air Ministry whose sole job is to provide for the safety of the nation in the air.

The Royal Air Force is recognised officially as our first line of defence. The Air Ministry, backed by our Committee of Imperial Defence, and by the Cabinet, has laid down the definite principle that the equipment of the Royal Air Force can only be assured by maintaining a soundly financed Aircraft Industry with adequate technical staffs capable of expanding in time of war and of supervising the construction of aircraft by engineering firms who have hitherto done no aircraft work.

Thus it may be seen that our system of sub-contracting among our own firms is just as much a staff exercise in preparation for war as is an Army staff ride or as are Naval manoeuvres.

As already shown, we have our own troubles with the R.A.F. and the technical sub-departments, but we have got them all pretty tame by now, and if they won't exactly eat out of the hand they have quit biting anybody's heels to any noticeable extent.

Naval Aviation

Now perhaps one may say a few words about the Navy. So far as one can gather Navies are much alike the World over. Whether it is that living in an iron box limits a man's views, or whether it is that immunity from sea-sickness produces a proud stomach one does not pretend to know. But the Naval man acquires opinions at a tender age and they cannot be got away from him even with the proverbial corkscrew which is said to operate successfully on a Scotsman's wit.

The U. S. Navy has an air service of its own, under a Bureau of Aeronauties. And bureaus, as all know, are inhabited by bureaucrats. As in the Army the Navy has splendid pilots—some of them were the first to cross the Atlantic by air. But the Bureau of Aeronauties has quaintly obsolete notions about equipping its air service.

The impression one has gathered is that the Naval aviators are chiefly used to advertise the U. S. Navy, rather than for any definite scheme of Fleet co-operation or coast defense. As with our own Admiralty which ostentatiously refuses to maintain a Press Department like the Army and the Air Force, the U. S. Naval Bureau of Aeronautics takes precious good care that when U. S. Naval aviators do anything worth while, the free and independent voter knows all about it. Which would be a very good thing if the Navy as such knew anything about using aircraft for war purposes.—Our own Naval people certainly do not, so one imagines that the U. S. Navy also has views on the subject which are a trifle out of focus.

The "Dock Yard System"

What one does know is that the Naval Bureau's idea of acquiring aircraft is based on the good old dock-yard system which worked quite well in the time of Noah and even as recently as the later Roman Empire, but did not defeat the Spanish Armada (for the Elizabethan sea-captains were soldiers who ran private sea-craft handled by master mariners under their orders) and let us down badly in the days of Charles II, when the Dutch came up the Thames and shot-up Greenwich.

It is an axiom that a contract-built war-ship is always better and cheaper than a Naval dockyard ship. But the British Navy is not sure about it yet. And the U. S. Navy seems quite sure that a dockyard aircraft is going to be so much better some day than any trade-built aircraft. Hence the nigger in the wood-pile, otherwise the Naval Aircraft Factory at Philadelphia.

Now the serious thing is that it was the Navy which saved British aircraft in 1914. The Air Department at the Admiralty kept a number of firms alive before the War, when the Army was all out to crush the Industry. But then the Air Department was under one Captain Sueter who has since been rejected by the Navy and become a member of Parliament and the First Lord of the Admiralty was Mr. Winston Churchill, who has since been rejected by several constituencies. So presumably there was something wrong with their mentalities. Still, they *did* save British Aviation and their work might have set an example to history.

Only, Navies are like the Bourbons(the Kings, not the whiskey), they learn nothing and they forget nothing. And if our Navy were allowed to have a Naval Air Service it would make a hash of it as it did during the War 1914-18, when, owing to its neglect to use its own Air Service, it very nearly allowed the German submarines to starve out the British nation.

Aircraft in British Navy

But again we have our Air Ministry, which controls all aircraft and supplies men and machines for what is known technically as the Fleet Air Arm. The result is that the British Navy, which for years has been bleating for an air service has now got more aircraft than it can accommodate on all the aircraft-carrier ships which it is allowed to build under the Washington Treaty. And those aircraft are the most advanced in the World of their own types. Can the U. S. Navy say as much? One does not know, but one doubts it.

The question is often asked, "Why should not the Navy have its own air service?"—The true answer is "Because a Navy (any old Navy) is congenitally incompetent to handle aircraft, strategically, tactically or mechanically." (Anyhow, who sank Lieutenant Wade's machine off Iceland?) That might be an impolite reply. So the easier reply is "Why should not an Air Force have its own fleet?"—The question is just as logical and still more difficult to answer. Try to find an adequate reply.

What Is the Use of Air Records?

By C. G. GREY

Editor of *The Aeroplane*, London

One of the first remarks made to me when I arrived in New York a few days ago and congratulated a friend in the aircraft business on the wonderful air records held by American airplanes was: "What's the use of air records when there's nothing behind them? No Army Air Service, no Navy Air Service, no aircraft industry and no airplanes being built worth talking about. Nothing except the trans-continental air mail and that runs with re-built wartime ships of English design!"

That seems sense on the face of it. You can't defeat an enemy air fleet with records any more than, as Kipling says, you can "ballot them back from your shore." And yet according to some of my friends in the States, the American People, when they think about Air Power at all, which isn't often, believe that because America holds all the airplane records America is therefore supreme in the air and safe against aerial invasions. Which is not so.

For some sixteen years I have been helping to hammer into the thick heads of the English people the idea that it is no use having a dozen aeroplanes each in its way the best in the world, the fastest, or the quickest climber or the biggest weight lifter, or the best at staying in the air for long periods, if one is likely to be attacked by a few hundreds of airplanes each inferior in quality, but making up for that in quantity. And now the English have wakened to the truth of the argument with the result that the Royal Air Force is officially recognized as our First Line of Defense, *vice* the Royal Navy retired hurt--very much hurt.

Good work was done by our former enemies, the Germans, who by dropping a few bombs in London converted quite a lot of people to a belief in and a proper understanding of

(Continued on page 1089)

The Rohrbach Ro II Twin-Engined Flying Boat

Japanese Air Force Purchased Plane of this Type Built In Denmark to German Designs

The Rohrbach model Ro II twin engined flying boat which forms the subject of this description was built to the designs of Dr. Paul Rohrbach by the Metal Aeroplan A. S. of Copenhagen, Denmark, which is the offshoot of the Rohrbach Metall-Flugzeugbau Company of Berlin, Germany.

Germany, Denmark and England

Dr. Rohrbach, as our readers will remember, was chief engineer and designer of the Staaken heavier-than-air craft construction branch of the Zeppelin Airship Co. during the war, and in this capacity he produced a number of very interesting multi-engined land and sea planes which were described in earlier issues of AVIATION. The most striking of his creations was, however, a huge four-engined cantilever land monoplane, known as the Zeppelin-Staaken, which was completed shortly after the Armistice, but which was destroyed by order of the Inter-Allied Commission of Aeronautical Control after the ship had effected a number of successful test flights. As the so-called "Nine Rules," which govern the size and power of German commercial aircraft under the Versailles treaty, would have prevented Dr. Rohrbach from building large planes of the type he was contemplating, he moved to Denmark and formed there the company above mentioned.

As a result of the success which attended the trials of the Ro II flying boat, the firm of William Beardmore and Co., Ltd., of Dalmuir, Scotland, acquired the British manufacturing rights for the machines designed by Dr. Rohrbach, and will exploit the patents held by the German engineer. This alliance between two specialists in metal aircraft construction—Beardmore built several rigid airships during the war—deserves considerable attention, the more so as this is the first instance since the war of a British aircraft firm securing manufacturing rights from a German source.

And Japan

A further point of interest with regard to the new Rohrbach flying boat is that a Japanese aeronautical mission which is journeying in Europe for the purpose of acquiring up to date aircraft equipment has placed an order for one of these machines. It has besides been rumored that a big Japanese shipbuilding firm has acquired the manufacturing right of Rohrbach products, but this has not so far been verified.

For the information regarding constructional details and performance which is given below we are indebted to our British contemporary *Flight*, which also states that complete Ro II flying boat has arrived at the Beardmore works, where it will serve as a pattern, and that it will not be very long before the first British built ship of this type will be launched.

As the accompanying photographs show, the Ro II is a twin-engined flying boat of the cantilever-monoplane type. The design is very unorthodox, not only in its constructional features, but also in general layout. The machine is built entirely of duralumin, even to the covering of boat hull and wings, and the only other material employed, outside the engines, is steel in the form of a few fittings and struts. At present wood propellers are fitted, but it seems probable that in time these will be replaced by metal propellers, thus making the machine entirely metallic and to a very great extent impervious to weather conditions.

Wide World Photo

The Rohrbach Ro. II flying boat (two 375 hp. Rolls Royce Eagle engines), ordered by the Japanese air force, which after successful test flights has been shipped to Japan. The wheels shown here are used for transportation on land only

The monoplane wing is set at large dihedral angle, and the two 375 hp. Rolls-Royce Eagle engines are placed above the wing, one on each side and projecting some distance ahead of the leading edge. It might have been thought that the very high center of thrust would tend to make the machine somewhat tricky to fly, but Dr. Rohrbach states that the machine shows no tendency to drop its tail when the engines are throttled down. Probably a careful balance has been struck between high thrust with slipstream on tail and no thrust with no slipstream. It will be observed that the tail plane is placed fairly high, and this, coupled with the fact that the boat hull is long and the tail well away from the wings and engines, is responsible for the good trim obtained. The lateral stability is also stated to be good, and the machine is regarded by pilots who have flown it as being very nice to handle, the control surfaces being balanced and very light on the stick.

The Boat Hull

The boat hull is of the flat-sided type, and is also flat bottomed. There are two steps, one approximately under the center of gravity and a rear step half-way between the wings and the tail. Aft of the step the bottom is slightly Vee-shaped. The deck, like the sides and bottom, is flat. Lateral stability on the water is obtained by two wing floats placed a considerable distance out, and it will be observed that the wings, with their large dihedral, are well clear of the water.

The fuel is carried in two large tanks slung underneath the wings, one on each side, between the wing floats and the main hull. There is thus no gasoline on the boat itself, and the whole space is available for passengers or cargo. Gasoline pumps driven by windmills lift the fuel from the tanks to the

engines. The arrangement is such that it would appear almost to be a physical impossibility for the machine to catch fire, the engines being totally exposed to the air, well clear of any other part of the structure, and the tanks several feet below them. It should also be an easy matter to provide jettison valves so that in case of accident the tanks could be emptied in a few seconds.

Cabin Accommodation

The cabin accommodation has not, in the present machine, been designed for commercial use, and so is not comparable with that of commercial seaplanes. The top of the boat shows a sudden drop ahead of the wings, and at this point windows are provided, some of which face forward, while others look diagonally forward. Smaller windows in the side enable the pilot to look along the leading edge of the wing and diagonally downward and forward. In addition, there is a skylight in the roof. In the extreme nose of the boat is a cockpit that may be variously used during the process of mooring the machine, by a gunner or for photographic work. A manhole in the deck of the boat gives access to the space between the engines, and enables the engineer, if necessary, to crawl out to one of the engines in order to effect minor adjustments. From this manhole also the windmills driving the gasoline pumps can be reached.

The cantilever monoplane wing is set at a very pronounced dihedral angle. The section used is apparently one of the Göttingen sections, although not of the Jukovsky or "tadpole" type. It has a flat-bottom, with the leading edge slightly elevated, and a deeply-cambered top surface, giving ample room for spars. It is to be observed that the wing does not taper either in chord or thickness, and that the ends are "sawn off square." It appears somewhat doubtful what the effect of this is on the efficiency, especially with such a thick section. Generally speaking, it is found that tapering a wing reduces the lift somewhat, reduces the drag at a rather more rapid rate, with the result that the *L/D* is usually better for the tapered than for the uniform wing. On the other hand, there are cases on record in which a taper in chord has resulted in an increase in both the lift and the *L/D*. The aileron balances consist of short symmetrical-section airfoils carried on an arm forward of the hinge and projecting past the wing tips. In other words, they are horn balances in which the horn does not form a portion of the main aileron.

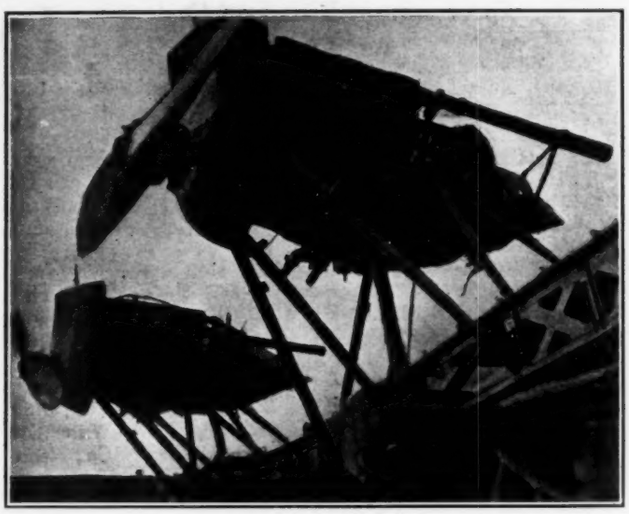
Wing Construction

Constructionally, the wing of the Rohrbach Ro II is interesting on account of the wholly unorthodox principle upon which the wing is built up. The main structure is formed by a "box," the front and back of which is a lattice girder in sheet duralumin, while the top and bottom of the box are formed by the sheet duralumin covering. U-section stringers running parallel with the spars are incorporated in the structure, and prevent the top and bottom covering from buckling. Of ribs in the ordinary sense there are none, longitudinal bulkheads at fairly long intervals maintaining the section of the box and supporting the stringers. All are, of course, riveted to the outer skin.

The leading and trailing edges are separate structures attached at top and bottom to the main structure by small lugs and bolts. It is thus possible to undo the top fastenings of leading and trailing edges, which then swing down and allow the whole of the main structure to be examined. Leading and trailing edges take no great part in resisting stresses, and are rather to be regarded as front and back fairings to give the middle portion its proper airfoil section. By undoing about twenty small bolts the whole leading or trailing edge of one wing can be examined. The ailerons, with this form of construction, are not hinged to the main box, but to an auxiliary spar placed farther aft.

Performance Figures

The boat hull is built on a somewhat different principle, but consists also of bulkheads and stringers with duralumin sheet covering. Where lap joins in the plates occur strips of fabric specially treated are interposed before riveting, thus helping to make watertight joints. In this connection, it is of interest to note that the original machine was first flown



Close up of the engine mountings of the Rohrbach Ro II flying boat

in November of last year, and that since then something like 120 starts (from rest up to take-off speed) and about 70 flights have been made, and that the boat hull is still perfectly watertight. One small leak was discovered to be due to a faulty rivet, and as soon as this defect had been remedied the hull became perfectly watertight. The machine has been moored out for long periods, and has withstood the weather without trace of deterioration.

Only scant information is on hand regarding dimensions, areas and weights. According to data furnished to the German aeronautical magazine *Z.F.M.* by the Danish firm, the Ro II measures 95 ft. 8 in. in span and 54 ft. 6 in. in overall length. The weight empty is given as 8360 lb., and the normal weight loaded 13,750 lb. With this load the plane takes off in still water in 25-30 sec., and has high speed of 118 mi./hr., and a landing speed of 65-68 mi./hr. The ceiling of the machine is 11,500 ft., which is reached in 30 min.

Book Review

THE COMPLETE AIRMAN. By G. C. Bailey, D.S.O., R.A.F. 269 pp., numerous illustrations. (E. P. Dutton & Co., New York.)

In this comprehensive volume the author provides the airman with a complete outline of the knowledge which he ought to possess, the mechanical and physical theory of flight, particulars of manufacture which enter into the construction of the plane, the actual design of the different types and their respective parts, including the engine and all its subsidiary details, the fuselage, the control system, the rigging and the propeller; the entire are of starting and running the engine and all the instruments required in flight, as well as general instructions for practical aerial work. Finally the various buildings of an airdrome, and chapters on the method of keeping the machines in condition and some useful meteorological data.

Air Mail Helps Agricultural Department

Henry C. Wallace, Secretary of Agriculture, states that since the establishment of the through mail service from New York to San Francisco on July 1, his representatives in the Western field offices were instructed to forward their reports to Washington by Air Mail Service, and that, as a result, the Corp Reporting Service has been materially aided.

As an instance of the time saved the Department of Agriculture by use of the newly established Air Mail Service, Secretary Wallace says that California reports from the Department's Sacramento office were recently received at Washington within two days, whereas formerly the reports were in transit from five days to a week.

Government Bids and Orders

Navy Department Bids

The following bids received by the bureau of Supplies and Accounts, Navy Department., on the dates indicated:

Aug. 19.

Schedule 2524.

Class 664, Philadelphia—1,000 lb. of casein—The Casein Mfg. Co., 15 Park Row, New York, 16c. Explosive Chemical Co., Inc., 350 Madison Ave., New York, 14.8c. Monite Waterproof Glue Co., 1628 N. 2nd St., Minneapolis, Minn., 14¼c; 30 days.

Class 665. Philadelphia—500 gal. of aluminum wing enamel—E. I. duPont de Nemours & Co., 3500 Grays Ferry Ave., Philadelphia, $1.50; 30 days. The Glidden Co., Cleveland, $1.85. John Lucas & Co., 322 Race St., Philadelphia, $1.90. Pittsburgh Plate Glass Co., Paint and Varnish Div., Newark, N. J., $1.64. The Sherwin Williams Co., Munsey Bld., Washington,$2.49; 30 days. Valentine & Co., 456 4th Ave., New York, $5.80; 30 days. Geo. I. Viall & Son, 57 No. Water St., Rochester, N. Y., $1.79; 30 days. The A. Wilhelm Co., Reading, Pa., $1.99; 30 days.

Aug. 21.

Schedule 900-8638

Spare parts, Liberty engines:

Louis J. Berkholz, 227 Quarry St., Philadelphia, $1,775.

Bridgeport Engineering Co., Bridgeport, Conn., $2,100, part.

Millimeter Machine Works, Inc., 546 W. 22d St., New York city, $2,185.

National Steel Products Co., 1101 E. 2d St., Dayton, Ohio, $1,450.

Steel Products Engineering Co., Springfield, Ohio, $3,900.

Universal Machine Co., Industrial Bldg., Baltimore, $1,970, part.

Superior Die, Tool & Machine Co., Columbus, Ohio, informal.

Aug. 22.

Schedule 900-8411

4 prs. radiators for DT4 airplanes:

Ajax Auto & Aero Sheet Metal Co., Inc., $620 per pr.. 60 days.

Curtiss Aeroplane & Motor Co., Garden City, L. I., $675 pr., 60 days.

Eberhart Steel Products Co., Inc., 812 E. Ferry St., Buffalo, N. Y., $601.84, 120 days.

G. & O. Mfg. Co., 598 State St., New Haven, Conn., $850, 60 days.

Aug. 26.

Schedule 2533.

Class 683. Washington—4 chronographs—American Instrument Co., 1214 D. St., N. W., Washington, $194; 60 days. Pioneer Instrument Co., $189; 60 days.

Schedule 2551.

Class 704. Philadelphia—3,000 lb. powdered aluminum—Aluminum Co. of America, Washington, 47c, in 50 lb. screw top tin drums. Baer Bros., 438 W 37th St., New York, 58c. Explosive Chemical Co., Inc., 350 Madison Ave., New York, 53.4c. State Chemical Co., 63 Park Row, New York 57.9c.

Schedule 2578.

Class 808 A. Lakehurst—2,550 ft. aviation steel cable and 2,500 ft. airship steel wire, electro-galvanized—No bids.

Class 809B. Do, hot coated—MacWhyte Co., Kenosha, Wis., item 7, 2.8c; 8, 2c; 9, 1-10c; total, $61.10. John A. Roebling's Sons Co., Trenton, N. J., item 7, $11.20; 8, $2.40; 9, 49c.

Class 809A. Lakehurst—6,800 ft. airship steel wire, electro-galvanized—No bid.

Class 809B. Do, hot coated—MacWhyte Co., Kenosha, Wis., item 10, 52.5c; 11, 42c; 12, 33.6c; 13, 22c; total, $22.55; 30 days. John A. Roebling's Sons Co., Trenton, N. J., all items, 40c; 30 days.

Class 810. Lakehurst—13,000 ft. steel wire—John A. Roebling's Sons Co., Trenton, N. J., 13.5c; 21 days.

Class 811A. 7,400 ft. cable, electro-galvanized—No bid.

Class 811B. Do, hot coated—MacWhyte Co., Kenosha, Wis., item 1, 5c; 2, 2.5c; 3, 5¼c; 4, 12¼c; 5, 13c; 6, 15c; total, $850; 30 days. John A. Roebling's Sons, Trenton, N. J., item 1, $4; 2, $2.80; 3, $5.20; 4, $12; 5, $13.20; total, $474; 30 days.

Sept. 2.

Schedule 2572.

Class 796. Philadelphia—100 lb. aluminum alloy bar—Aluminum Co. of America, 606 Southern Bldg., Washington, 37c; 30 days. Bausch Machine Tool Co., 156 Wason Ave., Springfield, Mass., 47c; 30 days.

Schedule 2576.

Class 801A. Philadelphia—100,000 sq. ft. mahogany, rules of National Hardwood Lumber Association—The Mengel Co., Inc., Louisville, Ky., 19c. Ichabod Williams & Son, New York City, 14c. The Talge Mahogany Co., Indianapolis, Ind., $135 C ft.; 90 days. H. B. Bond, Nashville, Tenn., 2.74c; 120 days.

Class 801B. Do, rules of the Hardwood Mfgrs. Institute—No bids.

Air Service No. 2, Awards

The following awards have been made under cir. CAS 2 by the chief of air service, U. S. Army, Washington, for lubricating oil, bids for which were opened Aug. 4:

George C. Peterson Co., 209 S. La Salle St., Chicago, 2,000 gal., McCook Field, 39.3c; 10,000 gal., Kelly Field, 39.3c; 8,000 gal. Kelly Field, 39.3c.

Standard Oil Co. of Indiana, Chicago, 4,000 gal., Bolling Field, 36c; 1,000 gal., Boston air port, 36c; 6,000 gal., Fairfield air intermediate depot, 38.3c; 1,000 gal., Grisard Field, 36c; 8,000 gal., Langley Field, 36c; 1,000 gal., Fort Benjamin Harrison, 38c; 1,000 gal. Bowman Field, 36c, and 25,000 gal. Fort Mason, 36c.

Regarding Air Expenditures

To the EDITOR of AVIATION:

"Allow me to congratulate you on your recent issue on the 1924 Army Expenditures; this is the kind of news the aviation public wants, especially the taxpayers.

"If our present candidates who are running for President would only come out and say they are in favor of a combination government and civilian aeronautical board, also eliminate duplication, by having one air secretary and an aircraft committee in the House and Senate to hold aircraft hearings, where civilians as well as government officials could express their opinion, civilian and commercial aviation would advance much more rapidly than it has in the past.

"Your publication of the expenditures of the Army Air Service has been a wonderful revelation to the aviation public. It would be interesting to have it itemized still more in detail.

"For instance, just how was the $2,927,160.72 expended for research and experimental work for 1924, and what were the results of these experiments?

"What has it cost the Navy to develop the airplane carrier Langley, and have they actually developed something new and useful? So far as I can see, the Langley is only a poor imitation of the English carriers.

"How much has been spent by the Navy on catapulting devices, both compressed air and powder charge, and have these experiments proven practical?

"How much has the Army spent on helicopter experiments, and what have they gotten out of them?

"What royalty is the Navy paying for each mooring mast and shackle for the Shenandoah, and what are the names of the English concerns these royalties are paid to?

"What is the name of the firm or government from whom the U. S. bought or acquired on royalty basis the retarding etc. devices which they were or are now using on the deck of the Langley, and what is the amount expended for these royalties?

"What part of this enormous total sum of money has been paid to American experimenters or inventors and what part has been paid in developing ideas of foreigners?

"How much have these expenditures advanced commercial aviation?

"It seems to me that if a little more was spent for such services as the Air Mail Service and more encouragement given to American inventors, that aviation as a whole would develop much faster in this country."

PLINY K. WESTCOTT

The New Army Air Transports

The Air Service Engineering Division at McCook Field recently invited American aircraft designers and manufacturers to submit bids for the construction of nine Liberty-engined Transport planes. It may be remembered that a year or so ago the Air Service placed with the L.W.F. company an order for the construction of ten transport planes to be built around the Liberty-12 engine. Owing to the closing down of the L.W.F. plant only one of these ships was built and delivered.

The new specifications for Transport planes provide that the machine shall carry a crew of two (360 lb.), six passengers or freight aggregating 1080 lb., 750 lb. of fuel, 100 lb. of oil and 324 lb. of equipment in which item there is an allowance for parachutes. With this load of 2614 lb. the following performance is desired: high speed of 100 mi./hr. at ground level, climb of 600 ft./min. from the ground, and service ceiling of 10,000 ft. A sacrifice in speed is preferred to a sacrifice in climb.

Special emphasis is laid upon a design that will insure ease of production, easy and rapid installation of the power plant and equipment, and ease of general maintenance. Regarding flying qualities, the airplane must be approximately longitudinally and directionally stable in all conditions of flight, load and in taxiing, and it must be capable of satisfactorily *performing and recovering* from a spin, side slip and vertical. (The reasons for this rather drastic requirement—considering that such a plane will weigh somewhere around four tons—are not given.)

The seats for the passengers shall be easily removable to permit carrying freight. With seats removed it shall be possible to load and carry concentrated loads of approximately the weight and dimensions of the Liberty-12 engine. Baggage space sufficient to carry approximately 50 lb. per person is also required. Provision must be made in the seating arrangement so that a seat type parachute may be worn by each occupant of the airplane.

An adjustable stabilizer shall be provided, having sufficient adjustment in flight to balance the airplane in all flying and loading conditions. Dual controls need not be fitted, but the pilots shall be able to interchange seats in order to relieve each other at the controls, and they shall also have access to the passenger cabin. The landing gear shall be of the divided-axle type.

While the normal power plant provided for the new Transport planes is the standard Liberty-12 engine, with engine driven generator and rear end starter, the design shall be adaptable for mounting the epicyclic geared Liberty. Gasoline tanks shall be of the crash-proof type if located in the fuselage.

It is worth special notice that the specifications for the new Transport plane do not require a welded steel tube fuselage, as the previous specifications did.

Raising a Moot Point

A Letter from England

Editor, AVIATION:

In a recent letter of mine, upon the possible existence of explorable regions beyond this earth, I took the position that simply to start out from this earth and fly upward, without special plans and purposes, would be a crude undertaking, and would probably be fruitless. But, from time to time, occur extraordinary phenomena which aviators could investigate, and which might be full of the circumstances which would be material for special plans and objectives.

In the past there have been many such occurrences, and presumably there will be others. For instance, four times in eleven years (1858-69) little black stones, in enormous numbers, fell in storms into the streets of Birmingham and Wolverhampton, England, towns about thirteen miles apart. The indications are that these stones, similar falls of which were reported from nowhere else in the world, were of origin in some substantial region, stationary for at least eleven years in the sky of Birmingham-Wolverhampton. Here we have a mystery of a kind that is definite enough for special investigation. Back in the period of 1858-69, it seems to have occurred to nobody to try to find whence these tremendous numbers of stones were coming, but if somebody had been interested, balloons are clumsy vessels for attempted exploration. I list references to records which show that these repeating falls of stones to one small part of this earth's surface did occur:

"Birmingham Daily Post," June 14, 1858, and May 30, 1868; "Report of the British Association for the Advancement of Science," 1864-37; "La Science pour Tous," June 19, 1860; "English Mechanic," July 31, 1868; "Symons' Meteorological Magazine," 4-137.

There were attempts by writers to explain that a whirlwind had so carried stones from some other part of this earth's surface. The whole significance is in the repetitions: each writer who tried so to explain treated only one of the occurrences, not having heard of the others.

There was an opportunity in California, in March, 1922. It was reported that stones were falling repeatedly from somewhere in the sky, to a point in Chico, Calif. Miriam Allen de Ford, a trained observer and writer, went to Chico and investigated. Probably she will answer inquiries (P. O. Box 573, San Francisco, Calif.). In her account, which has been published, she says: "While I was discussing the subject with bystanders, I looked up at the cloudless sky, and suddenly saw a rock falling straight down, as if becoming visible when it came near enough."

It does seem that if an aviator had gone to Chico to investigate, he might have found out something as to these stones, which fell from some invisible place in the sky, intermittently for many months.

All such phenomena seem to me to be very much like the situation in Spain, before the year 1492, when now and then were reported arrivals upon the coast of strange objects and substances from unknown lands westward. If readers of this letter have ever made observations which relate to the subject, I should be very much obliged if they will send information to me, at my present address, 39 Marchmont Street, Russell Square, London, England.

CHARLES FORT

Japan Looks Aloft

The passage through Japan of airplane crews of four nationalities has greatly stimulated flying progress. Never has there been such agitation for the establishment of commercial services through the islands and the advancement of the army and navy air services, says the *N. Y. Evening Post.*

In doing honor to the American Army pilots and to the British amphibian airplane exhibition as the respective craft passed, though headed in opposite directions, and to Captain Doisy who flew from Paris to Peking, and the Portuguese fliers, who got as far as the Portuguese concession, Macao, opposite Hongkong, the Japanese have unwittingly or not accentuated the empire's backwardness in flying.

In the past most of Japan's army and navy air activity has been shrouded in mystery. The Westerners' flights half and all the way around the world, notably America's, have served to change this attitude. It is realized that there is something to be gained by arousing the sympathy of the public and by the world prestige which comes with publicity for important exploits.

As if in response to popular dissatisfaction with Japan's air situation, announcement has been made of a new naval dirigible and a submarine air tender. The Kasumigaura naval station school has completed construction of a dirigible which will be capable of carrying twenty-four passengers.

It is three times the size of the one which caught fire a few months ago and is equipped with engines totalling 700 hp. The first collapsible midget airplane for submarine use has been imported from France for the navy. It weighs 490 lb. and is driven by a 70 hp. engine. It will be carried aboard a 900 ton submarine.

To keep the new interest in aviation alive, the Tokio Nichi Nichi and Osaka Mainichi newspapers organized a round-Japan flight with a privately owned seaplane, which is attracting attention. Air mail services to outlying islands, such as abound around Japan, as well as intercity overland routes, are being discussed.

French Parachute Competition

The third consecutive parachute competition for the Nieuport- Astra prize, recently held at Villacoublay airdrome, near Paris, was definitely won by the Robert parachute, while the Tinsonnier parachute was awarded the second and third prizes. The other ten parachutes which had been entered were all ruled out for various reasons.

The entries included the following makes: Blanquier (3), Calthrop, C.F.A., Cormier, Froidure, Heinecke, Ors (2), Robert and Tinsonnier. The Calthrop was of English manufacture, and the Heinecke of German; all other parachutes were of French make.

Much bad feeling appears to have been caused among the contestants by the fact that the "Service Technique" (the French McCook Field) seemed to be unduly partial toward the Robert parachute which is the officially approved type of the French air service. In fact, the two previous competitions for the Nieuport-Astra prize, held in 1922 and 1923, had to be annulled on account of the numerous protests which were lodged against the manner in which these contests were conducted. This year's competition, too, appears to have suffered from official favoritism judging from comment in the French press.

The conditions of the competition were quite simple. The size of the parachute packs was limited to 23.4 x 13.6 x 4.7 in. in the case of back types, and to 13.6 x 15.6 x 7 in. for seat types. The weight limit was 15.4 lb. The strength required for the shroud lines was 4,400 lb. The following maximum values were preseribed for the flying tests: time of opening, 4 sec.; falling speed, 5.50 m. (18 ft.); shock produced on opening, 500 kg. (1100 lb.). The flying tests consisted of three launchings, the first from an airplane flying at 100 mi./hr. at 500 meters altitude; the second at 105 mi./hr. from 400 meters; and the third at 110 mi./hr. from 500 meters. The maximum falling speed from 500 meters (1650 ft.), as prescribed by the regulations, corresponded to 1 min. 30 sec. A single failure to perform within the maximum values prescribed was to eliminate the contestant.

Before dealing with the performances of the parachutes which went through the entire competition it is interesting to record the causes which eliminated the others. The C.F.A. parachute ripped on the first launching, while the Froidure, which appeared to be strongly constructed, only opened in 4.2 sec. and descended from 500 meters in 1 min. 19 sec. One of the two Ors parachutes was also eliminated because it required too much time for opening. This was due to a small auxiliary parachute which had been fitted to reduce the opening shock, and this was actually brought down to 200 kg. Two of three Blanquier parachutes were also eliminated, one because it opened incompletely, and the other due to the breaking of the harness which dropped the dummy to the ground. The Heinecke parachute was ruled out after the third launching when it opened in 4.8 sec., although the two previous launchings were normally effected. Although this parachute appeared to descend rather quickly, the opening shock was one of the smallest recorded. The Cormier was eliminated because it exceeded the dimensions allowed in the rules.

The following tables give the performances of the parachutes which were not eliminated:

First Launching (from 500 meters)

	Opening (sec.)	Descent (min.-sec.)	Opening shock (kg.)
Robert	2.3	1-22.8	325
Tinsonnier	3.0	1-29.7	217
Ors	2.2	1-20.8	361
Blanquier	1.5	1-26.8	448
Calthrop	1.9	1-21.1	281

Second Launching (from 400 meters)

	Opening (sec.)	Descent (min.-sec.)	Opening shock (kg.)
Robert	2.1	2-6.6	325
Tinsonnier	2.5	1-27.1	325
Ors	1.6	1-26.6	373
Blanquier	2.9	0-54.8	373
Calthrop	2.5	1-02.8	270

Third Launching (from 500 meters)

	Opening (sec.)	Descent (min.-sec.)	Opening shock (kg.)
Robert	2.3	1-19.3	373
Tinsonnier	3.1	1-18.6	281
Ors	4.0	1-26.8	238
Blanquier	1.7	1-17.0	448
Calthrop	2.0	1-07.1	448

It will be seen from the above tables that not one parachute fully satisfied the limit requirement of falling speed (500 meters in 1 min. 30 sec). Had the regulations been strictly enforced, all the entries would therefore have been eliminated. However, the judges decided in view of the fine performance of the Robert (the official design) in the second launching to cumulate its times for the three descents, and so it was awarded first place. The same procedure was used in the case of the Tinsonnier, which secured second and third prizes.

Air Mail Speeds Foreign Letters

Realignment of world mail routings will be brought about as the result of the establishment of the new American air mail service, according to a prediction of Postmaster General New following the receipt of inquiries from European countries for information regarding mail flying schedules. The service is also expected to increase to some extent the amount of foreign mail transported in American vessels.

European mail now routed via Marseilles and the Suez Canal destined to Australia and the Orient may be diverted to New York to take advantage of the American Air Mail Service, which oftimes will be able to shorten transit time as much as two weeks.

A similar situation prevails with reference to Australian and New Zealand mail from England now being routed on certain days via New York and the Pacific coast, to connect with vessels sailing from Victoria, B. C., and San Francisco. In many instances the faster air mail service will be able to make connections with steamers at San Francisco and save from two days to two weeks in time of transit. It is such instances as these that are interesting to foreign mailers and no doubt have prompted the inquiries regarding the New York to San Francisco Air Mail Service. The same situation, of course, applies to virtually all other European and trans-Pacific countries.

Most of these countries already have been advised of the inauguration of the new service and have been furnished flying schedules showing how the service may be employed to their advantage.

An indication of the interest being manifested by the British in the American Air Service as a utility for speeding up their own mails to foreign countries occurred during the first few days of its operation.

An Englishman mailed a fourteen ounce letter from Salisbury, England, to Sidney, Australia, specifying transportation by the American Air Mail Service, so that the missive would catch, at San Francisco, the Tahiti of the Union Steamship Company of New Zealand, the next sailing of a mail steamer for Australia.

The Air Mail Service also is expected to handle a large amount of mail originating in the United States for delivery to foreign countries. A recent departmental ruling provides that no extra postage beyond the regular Air Mail postage will be required on mail addressed to countries where the two-cent postage rate is applicable. To countries where the international rate applies, the Air Mail postage will be held as covering the portion of the postage fee accruing to the United States and only three cents additional will be required for the first ounce and one cent for each additional ounce or fraction thereof.

American Equipment Wanted Abroad

Specific inquiries have been received by the Department of Commerce for American airplanes, "hydroplanes" and balloons from three foreign countries. These inquiries are listed in the department's confidential bulletin of Sept. 1, and are preceded by a key number to which reference should be made in securing further details from district offices of the Bureau of Foreign and Domestic Commerce in the principal cities of the United States, or direct from the department at Washington.

The inquiries, with the reference number, are: Czechoslovakia, 11,404, Balloons; Lithuania, 11,467, Airplanes, and Uruguay, 11,456, "Hydroplanes."

What Is the Use of Air Records? (Cont'd)

Air Power. After the Armistice in 1918 the people went to sleep and dreamed that there would be no more war, forgetting that Man will be a predatory animal so long as his eyes grow in the front of his head instead of at the sides. Then the French began building a huge air force, with money which they owed America on England's guarantee, and talked about 2,000 bombers and 2,000 fighters as a safeguard against Germany's revenge.

That woke the English Press and people again, for it is not pleasant to feel that the man next door has a club against one's own bare hands, even though he may be quite a good friend for the time being. And so our fold sat up and took notice with the result that today England is building the biggest air fleet in the world and already has the strongest air force, because it is the best trained and has the most experience of war. For you see, the Royal Air Force has been continually at war in North and South Russia, in Northwest India, in Mesopotamia (officially called Iraq), in Arabia and in Africa ever since the Armistice and is still at war.

Now President Coolidge has said that the United States must have an air force worthy of the standing of the nation among the World Powers. Armies and navies are being limited by Washington Conferences and Lausaune Treaties and Hague Conventions and Leagues of Nations and all those other patent medicines which theoreticians invent in the hopes of stopping war, happily ignoring the fact that if the civilized nations disarm they merely leave the road open to any old Tartar Tribe armed with swords and bows and arrows, though as a matter of fact the Yellow Folk in these days have the most modern weapons. But none of these conventions have attempted as yet to limit air forces. So the nations which build up big air forces right now will be able to maintain them in the future even if more disarmament agreements are made. And just here is the opportunity for the United States to build an air force which will be the nation's first line of defense and offense.

American aircraft hold all the World's Air Records. That is definite proof that you have in the country the technical brains to give you the best equipped air force in the world if the People and the Politicians have the brains to pay for it.

You have the World's Speed Record. That means that you can have in quantities the fastest pursuit ship and the fastest scout. If an enemy fleet attacks your coast it is an advantage to send out a scout which will locate that fleet a hundred miles from the coast and be back within an hour of its start with a full description of that fleet's constitution.

You have the World's Long Distance Record. That means that you can have in quantities aircraft which will carry a big load of bombs long distances and put enemy's fleet out of action so far from your coast that the aircraft carried in enemy ships cannot reach you.

You have the World's Height Record. That means that you can have in quantities aircraft that will outclimb the enemy's machines and will be able either to do their scouting jobs without interference or can sit up in the high sky ready to dive in attack on any hostile aircraft which come along.

Thus it may be seen that your Air Records prove that you can have the finest possible air fleet if only the People and the Politicians will back the President in his desire to make America a First Class Air Power. At present your records are just a facade with nothing behind them. But with some good will and a little money you can build an impregnable fortress behind that facade.

Unofficial Seaplane Speed Record

Lieut. David Rittenhouse of the United States Navy on Sept. 27 created a new unofficial speed record for seaplanes by traveling over Manhasset Bay off Port Washington, Long Island, at an average speed of 227½ mi./hr. for 30 min. and at one time attaining a speed of 242½ mi./hr.

The previous official record was 169.89 mi./hr. and was set by Lieutenant Rittenhouse himself last year when he won the Schneider Cup at Cowes, England. The timing on Sept. 27 was announced by Lieut. R. K. Jones, under whose supervision the flight was made.

The flight was made over a course of 4.26 statute miles between Execution Light and Stepping Stone, under ideal weather conditions. The machine used was a Curtiss navy R2C seaplane which as a landplane holds the world's speed record. It was being tested from the station of the Curtiss Metropolitan Airplane Company at Port Washington preparatory to competing with the other American entries at Baltimore Oct. 24 and 25 over the Schneider Cup course.

American World Flight Completed

The American Army round-the-world fliers formally completed the circuit of the globe on Sept. 28, landing at Sand Point Field, Seattle, at 1:36 p. m., Pacific time.

As soon as they landed the fliers were handed the following telegram from President Coolidge:

"On final completion of your flight I desire to again offer my congratulations and express to you the thanks of your country.

"Under the law I do not understand that I have authority suitably to reward you by promotion and other appropriate action.

"I wish, however, to announce to you that on the convening of Congress I shall recommend that such authority be granted in order that your distinguished services may have a practical recognition from your country."

AVIATION regrets that lack of available space prevents it from giving an account of the enthusiastic receptions which the fliers have received at the various points where they have stopped on their trip across the continent. The spontaneity and magnitude of these receptions show the enthusiasm which can be aroused by flying in this country if it can be presented in the proper way.

Continuing the log of the flight the fliers left Tucson, Ariz., on Sept. 22 and covered the 335 mi. to San Diego, Calif., in 3 hr. 46 min. Lieutenant Nelson started from San Diego on March 18 having gone to that point to have his compass swung. He is therefore technically the first man to circumnavigate the globe by air. The official start however was from Seattle, Ore.

On Sept. 23 the fliers covered the 120 mi. to Clover Field, Santa Monica, Calif. This brought them back to their home field from which they had started on March 17, six months and six days before. Lieutenant Nelson, as he climbed out of his plane asked "Where's Donald Douglas? He sure has built some planes."

On Sept. 25 the fliers proceeded to Crissy Field, San Francisco, Calif., where they were greeted by a crowd of over 25,000 persons. Lieutenant Wade had battery trouble a short way out from San Francisco and was forced down but rejoined the other fliers an hour later.

On Sept. 27 the fliers covered the 400 mi. which separates San Francisco and Eugene, Ore., in 5 hr. 17 min.

On Sept. 28 the fliers officially completed the flight around the world when they covered the remaining 230 mi. to their starting point in 3 hr. 34 min.

It was on April 6 that the four Douglas World Cruisers left Seattle. Only two machines however completed the whole circling of the globe. These were the Chicago, piloted by Lieut. Lowell H. Smith and the New Orleans, piloted by Lieut. Erik H. Nelson. The elapsed time since the start has been 175 days, the flying time approximately 351 hr. Some 57 stops were made, so that the average length of the flights is around 480 mi. These figures are still only approximate as the official report will probably not be given out for some time.

Major General Patrick, chief of the Army Air Service, declared it was the intention of the War Department to do everything in its power to compensate the aviators fully and Secretary Weeks also is pledged to see that they are treated in accordance with the broadest reach of the law and army regulations regarding promotion and financial considerations.

The War Secretary has stated his intention to have the fliers repaid for any personal financial loss either by the department or by special authorization of Congress. Should these fail, he has said he would dig down into his own pockets if necessary.

AIRPORTS AND AIRWAYS

Long Island Sound News

The commercial pilots of Long Island Sound report a prosperous summer, the beach hopping having been a good deal better than last year. Passengers were more numerous and high rates were obtained.

Harry Rodgers has purchased H. S. Vanderbilt's Loening air yacht which he will use for special charter work. Beside this ship he has two MF's and one Seagull, all powered with Curtiss C6 motors. Under favorable weather conditions four passengers besides the pilot can be carried in these boats, which makes them very profitable for beach hopping.

The Curtiss Metropolitan Airplane Co. of Port Washington, L. I., has purchased the balance of the MF's from the Curtiss Company of Garden City, and has already sold several of these ships, while others are being assembled which are to be flown away from the Port Washington hangars. It will be remembered that the Curtiss Meropolitan Airplane Co. was formerly the American Transoceanic Co. and is still under the management of Fred Golder, with Cliff Webster as chief pilot. The Curtiss Schneider Cup Racer was also assembled and tested at the hangars of the Curtiss Metropolitan Co.

Harold Vanderbilt's all-metal monoplane flying boat is undergoing flight tests at Port Washington.

The Aeromarine model EO flying boat, fitted with a 70-80 hp. Anzani, piloted by E. D. Osborn, has been visiting at Port Washington. The various pilots who have flown it seem well satisfied with its performance.

A flying boat meet was held at Rye, N. Y., on Sept. 20. H. Rodgers in his Loening, Niemeyer and Regan in MF's, Cady in a Seagull, and Cliff Webster in a MF participated in an 8 mi. race. Unfortunately the course was not very clearly defined and there seems to be some confusion as to who won the race. There was also a parachute drop and a large number of pay passengers were carried.

On Sept. 25 Miss Nichols qualified for her F.A.I. seaplane pilots license in fine style. She has been taking instruction from Harry Rodgers, whose operating base is at Rye, and has made a very apt pupil.

Cincinnati News

By E. F. Marsh

Hugh Watson, manager of commercial industry at Grisard Field, reports a fine business. The courtesy and service rendered by Mr. Watson and his brother are going far to advance enthusiasm here.

When it is considered that Mr. Watson, located this great distance out with no transportation facilities, is meeting with big success, it is an achievement which indicates his managerial ability.

Three well equipped 3-place Standard J1's are being operated.

* * *

Myron Lay and Harry Heasel, making a test flight at the Hyde Park Country Club, had a narrow escape last week when an engine support broke forcing them down quickly from a 500 ft. altitude. Considerable of the "green" was torn up due to a one point landing and the fliers will discontinue "test operations" on the golf course.

* * *

Eddie Stinson with seven passengers gassed up to and from Nashville, Tenn., at Grisard. The passengers were delegates from Detroit attending the convention of Exchange Clubs at Nashville. The trip both ways was uneventful. The Cincinnati *Post* remarks: "The arrival and departure at Grisard Field of seven Detroit men in one airplane, making a journey in a few hours from Detroit to Nashville, created no more stir than the arrival and departure of a train from Detroit at the Grand Central Station."

Hugh Watson has a contract for broadcasting from the air for a local radio firm. It is a pleasure to listen to Hugh "way up there" and radio fans are enthusiastic about it.

* * *

The organization work by Charles E. Lay, local engineer of a sales and distribution company, is progressing nicely and a complete directorate will soon be announced. Two of the men connected with the company have built two of our large national sales organizations. Eighteen months have already been spent by them in looking over the field and future possibilities and the work when completed is expected to mark the beginning of definite sales policies in the aeronautical industry.

A local paper comments: "A new business institution is being organized in this city. This is how the business will be organized: The stockholders will name a board of directors. The directors will appoint a general manager. He will not be some fellow who is a 'personal friend,' but will be chosen because he has had experience in handling large business affairs. His job depends upon his making good, so he will choose his subordinates for merit alone. This organization will sell airplanes, and if the solicitation through which we have just passed is a criterion it will be but a few years until the airplane takes its place not only in business but the air lanes will have many travelers. This is no idle fancy. The flying machine already is the accepted means of rapid and comfortable travel and with the advent of the educated salesman, we must expect to be sold."

This editorial comment is something different anyway.

SCHNEIDER CUP RACE CALLED OFF

Owing to the withdrawal of the three Italian entries, and the accidental wrecking of the sole British entry, the Jacques Schneider International Cup race scheduled to be held Oct. 25, next, at Baltimore, Md., has been called off, the Flying Club of Baltimore sponsor of the race, announces.

The cancellation of this race will not, however, affect the meeting that was to be held in this connection at Baltimore. The four racing seaplanes prepared by the Navy to keep the Cup in this country will be sent to Baltimore, and will attempt to make new seaplane records during the meet, beside which there will be numerous other interesting events, as previously announced.

Cleveland News

By Cy Caldwell

Capt. E. L. Janney, formerly of the Royal Canadian Air Force and Royal Naval Air Service, in which during the war he performed very distinguished service as a member of famous No. 2 Squadron, was a recent visitor at The Glenn L. Martin Field. He flew from Akron in a Jenny carrying as passenger Lieut. John R. Macready of trans-continental fame.

It is stated that during the flight Lieutenant Macready,

becoming impatient at the Jenny's leisurely progress, shouted, "Can't you go any faster?" "Of course I can," Janney replied, "But I have to stay with the ship."

Captain Janney returned recently from British Guiana where he is organizing an aerial transport service of F5L's between Georgetown and the diamond mines at the headwaters of the Mazaruni River.

The mines are only 150 mi. from the coast and may be reached in two hours by air. A land party, however, is forced to cover some 400 mi. with a large party of native bearers to carry canoes and supplies over the frequent portages through dense tropical jungles and fever infested marshes. This form of transportation takes six weeks and entails great hardships, discomforts and danger. The percentage of deaths to both Europeans and natives is large on this unhealthy journey, and few if any of those who take the trip are free of fevers. Captain Janney's enterprise is therefore receiving every encouragement from the Government and from British financial interests in the country to which Captain Janney is returning soon.

* * *

Accompanied by mechanic Elmer Kline, B. L. Whelan flew a passenger to Cleveland in the Rhinehart-Whelan Liberty-motored, 4 place cruiser, landed at Glenn L. Martin Field, and offered to take any employee of the Martin Company back to Dayton. It was a courteous offer, greatly appreciated. Especially was it appreciated by two vivacious young ladies of considerable charm, who easily prevailed upon the less beautiful men to forego the flight which the girls desired intensely themselves.

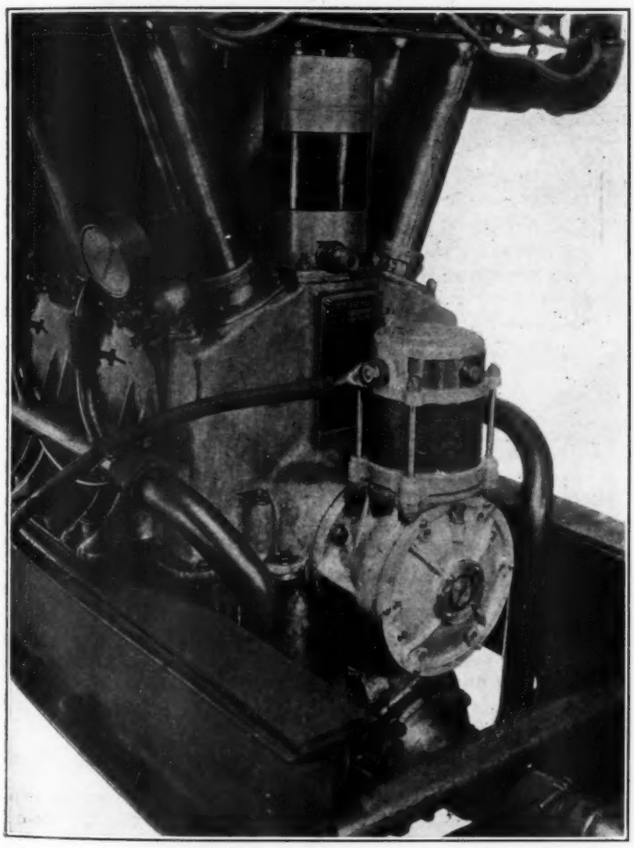
After they had powdered their noses and patted their bobbed tresses they were introduced to Mr. Whelan who stood by his plane wearing that stodgy look which indicates infallibly the married man. That look changed at once to one of surprise and embarrassment when Mr. Whelan learned that his would-be passengers were not the two ordinary hard-boiled men he had expected. He staggered under the shock but recovered speedily, especially when he heard Kline exclaim, "What would our wives say?" That, as Hamlet remarked, was the question.

Then Whelan started to talk. He mentioned the dangers of air travel, his responsibility for their precious lives, the utterly unfavorable weather, the mist, the fog, the rain, the hurricanes, the price of ham in the Sandwich Islands. He mentioned everything except Kline's question. And he thought that.

But these two persuasive chickens pushed forward every plea they could think of to induce Whelan to take them. And they might as well have tried to push over Bunker Hill.

"The trouble with you is that you're married," the more militant of the pair told him, "If you were single you'd be tickled to death to take us."

Unfortunately they were just five years too late.



Bijur Liberty engine starter of the type used on the Douglas World cruisers. Manufactured by the Eclipse Machine Co., Elmyra, N. Y.

Lieut. Erik Nelson and Morris M. Titterington, inventor of the Pioneer Earth Inductor Compass, which was successfully used on the World Flight

Wichita Air Meet

The Wichita Chapter of the N.A.A. is putting on a flying meet Oct. 10 and 11 with the idea of promoting and stimulating commercial flying, enlarging the chapter and securing an adequate and permanent air terminal for Wichita. The show has the sanction of the National Aeronautic Association and the events will be handled under the F.A.I. Rules.

The races are for both civilian and military fliers, and an event for the Air Mail, should the latter participate. In addition to $10,000 in prizes there will be many beautiful trophies. There are racing events for everything in flying from Jennies up.

Further information and entry blanks may be obtained from Howard F. Wehrle, Room 226, Hotel Lassen, Wichita, Kans. Mr. Wehrle is technical director of the meet, and will have charge of operations on the field during the meet.

For a San Francisco Airport

A delegation from the San Francisco Flyers Club has laid before the local Board of Supervisors plans for the conversion of a portion of the Marina into an aviation park.

The local commercial aviators urge the establishment of an aviation field on the Marina as a necessity in the development of local commercial aviation and as a future asset in the commercial life of San Francisco when aviation shall have developed to such a degree as to make transportation of passengers and freight by airplane practical and economical.

Army Air Service officers for several years past have urged the establishment of an air field on the Marina which could be extended and connected with Crissy Field at the Presidio, as vitally necessary in the defense of San Francisco harbor and of the Pacific Coast and as an operating base for scouting, observing and bombing planes in times of war. At present Mather Field nearly 100 mi. by air line is the nearest field to San Francisco from which bombing planes could be operated.

UNITED STATES AIR FORCES

U. S. ARMY AIR SERVICE

Army Air Orders

First Lt. Walter Morrison Moore, A. S. Off. Res. Corps, Fairfield, to active duty Dec. 1, Washington, reverting to inactive status Dec. 15.

Maj. John Hawley Larned, A. S. Off. Res. Corps, New York City, to active duty Sept. 2, Washington, reverting to inactive status Sept. 16.

The following enlisted men, A. S. to Com. A. S. Prim. Fly. Sch., Brooks Field for appointment as Fly. Cadets: De Vere C. Shaffer, Boston Air Port, Francis J. Savage, Mitchel Field, Fred L. Brown, James R. R. Reid, Aberdeen Proving Ground, Vernon D. Hanson, Carl F. S. V. Konow, James R. Tent, Paul L. Woodruff, Bolling Field, John L. McDonald, George W. Marshall, George P. Valentine, Maxwell Field, Archie P. Garland, Harold K. Knoop, Wilbur Wright Field, J. Griffin Kelly, Ray C. Murray, Langley Field, Ernest B. Stoelting, Scott Field, Clinton Burroughs, Russell Keillor, Selfridge Field, Marion K. Hancock, Fort Riley, Ambrose M. Banks, Arthur Z. Bender, Kelly Field, Allen A. Badler, Fort Riley, William H. Kretz, Kelly Field, John H. Philips, Ft. Sam Houston, Wendell H. Hill, Ft. Sam Houston. Theodore Moffit, Chanute Field.

Maj. Roy M. Jones, A.S., Middletown, to Prim. Fly. Sch., Brooks Field.

Maj. Fred H. Coleman, A.S., Langley Field, to Balloon & Air Sch., Scott Field.

First Lieut. John G. Williams, A.S., Brooks Field, to San Diego.

Priv. Cecil Brooks, A.S., Brooks Field, to Kelly Field.

Priv. Ralph Watson, A.S., Kelly Field, to Brooks Field.

First Lieut. Virgil Hine, A.S., San Diego, to Brooks Field.

Master Serg. Harry V. Macknight, A.S., Chanute Field, retired.

Sec. Lieut. Henry G. Fisher, 38th Inf. Fort Douglas, detailed to A. S., Brooks Field.

Sec. Lieut. Hal C. Granberry, 12th Inf., Fort Howard, detailed to A. S., Brooks Field.

First Lieut. Samuel C. Eaton, jr., Fairfield, to New York City, sailing on transport for Canal Zone, Jan. 8, 1925.

First Lieut. George P. Tourtellot, A.S., Selfridge Field, upon completion gunnery competition, Langley Field, to McCook Field.

First Lieut. Charles L. Morse, A.S., Eng. Sch., McCook Field, for duty Com. Off., McCook Field.

Sec. Lieut. Walter C. White, Inf. (Tanks), Camp Meade, detailed to A. S. Brooks Field.

First Lieut. Aubrey I. Eagle, A. S., Bolling Field, to New York City, sailing on transport for P. I. Dec. 12.

First Lieut. Harry A. Dinger, A.S., upon completion of tour of foreign service, to Bolling Field.

First Lieut. Arthur W. Vanaman, A.S., upon completion of tour of foreign service to San Antonio, A. I. Dep.

Spec. Or. 35 amended to place Sec. Lieut. Francis Toomer Hazeltine, A. S. Off. Res. Corps on active duty and to direct Lieutenant Hazeltine to proceed from Arlington, Mass.

Sec. Lieuts. Leonard Henry Rodieck, Palestine, Tex., and George Edward Lightcap, jr., Johnstown, Pa., upon expiration of leave to A. S. Prim. Fly. Sch., Brooks Field.

The First Aid Gun

A new first-aid fire extinguisher with a pistol grip, which because of its efficiency and simplicity of operation promises to supplant all other types for Air Service use, has recently been designed and developed at McCook Field by G. W. Burke of the Equipment Section. In appearance it resembles nothing so much as an oversize revolver with a swollen barrel. One's first impulse is to pick it up and pull the trigger, and since this is exactly what one is supposed to do in case of emergency, without having to stop and read directions or puzzle one's head over remembering instructions, the advantage of immediate relief, important time saved, and ease of operation is apparent.

The same fire extinguishing fluid used in other fire extinguishers, carbon tetrachloride, is used in this one. This fluid is the safest and most satisfactory for Air Service use, where fires on airplanes are often caused by gasoline, oil or electric short circuits, upon the blaze of which water has little effect.

A one quart size brass cylinder forms the container for this fluid and likewise the barrel of the gun. Brass is the essential metal because of the highly corrosive influence of carbon tetrachloride on other metals. A small cartridge into which carbon dioxide gas under high pressure has been compressed, is inserted. One pull of the trigger causes a firing pin to puncture the cartridge which releases the gas into the main container, with a compelling force of 160 lb. This forces the fluid through the nozzle, opened simultaneously with the pulling of the trigger. It is just that simple.

The trigger grip is placed well to the center of the cylinder, balancing the load and making it possible to hold and operate the gun with one hand. Since the Underwriter's Laboratory considers a quart size of this extinguisher one-half a unit of fire protection, a full unit can be supplied by one person using an extinguisher in each hand. So great is the compelling force supplied by puncturing the carbon dioxide cartridge that 40 lb. pressure remains in the container after the last drop of carbon tetrachloride has been expelled. The extra cartridges are carried in the lower part of the grip and in case of emergency, if all available carbon tetrachloride has been used, the cylinder may be filled with water, which when charged with the released carbon dioxide has fire extinguishing qualities in itself.

A feature which adds to the efficiency and durability of the Burke extinguisher is the fact that while the usual extinguishers have most of the working parts submerged in the carbon tetrachloride, causing corrosion and often failure of parts, the Burke extinguisher has all the working parts outside the fluid.

The handy bracket for carrying the extinguisher on aircraft has been so designed that the extinguisher can be released by one motion of the person seizing it, but it cannot be forced out by striking or jarring or any motion of the plane. A safety stop prevents the trigger from being set off unintentionally in the bracket. When used as a pressure system for delivering the fluid at a remote point through tubing, a small device holds the trigger open, so that the pilot may have the use of both hands for managing his plane while the extinguisher continues to send the spray. The extinguisher has successfully met all mechanical tests and is at present undergoing riding tests. Four airplanes have already been equipped with it for this purpose.

Third Attack Group Conducts Tactical Problem

The Third Attack Group, Kelly Field, Tex., recently conducted a tactical problem near Laredo, Tex., two flights of three planes each participating in the mission to attack and destroy a combat train near that place.

The Group left Kelly Field at 7:45 a. m. and proceeded to the Advance Airdrome at Laredo. They landed and established PCs at 9:40 a. m. The enemy was reported one mile south of the Texas-Mexico Railroad and six miles east of the Rio Grande River. Flights were immediately ordered to clear the airdrome and destroy the enemy. Taking off at once, they proceeded to the point designated where the enemy was simulated by cloth panels. Four attacks were made, the first in

column, each plane dropping four bombs from an altitude of 150 ft. A return attack was then made, with flexible machine guns mounted in the rear cockpit, from an altitude of 100 ft.; a third attack was made with synchronized machine guns, starting at an altitude of 1000 ft.; and the fourth, with flexible machine guns, concluded the problem.

The Group then returned to the Advance Airdrome at Laredo where the planes were refueled.

DH4B Airplane Makes Third Long Non-Stop Flight

A non-stop flight of 1,118 mi. by Lieut. W. R. Peck, Kelly Field, Tex., on Aug. 8 in a DH4B airplane makes the third unusual flight that this particular airplane had made since its construction two years ago. Lieutenant Peck took off from Kelly Field at 5:40 a. m. and landed at Kokomo, Ind., at 3:00 p. m. the same day. This plane, which is equipped with a 268-gal. gasoline tank, was used by Lieut. James H. Doolittle in a one-stop Coast to Coast flight in 1922, and was also used by Lieut. H. G. Crocker in a non-stop flight from the Gulf of Mexico to the Canadian border.

Activities of San Antonio A.I.D.

During the month of July the Engineering Department of the San Antonio Air Intermediate Depot, under the direction of Lieutenant Powers, completely repaired and overhauled the following planes and engines:

Airplanes: 11 DH4B's, 1 DH4B1, 1 DH4B4, 9 JN6HI's, 5 MB3A's, 1 MB3M; Engines: 26 Liberty 12A, 13 Wright I, 2 Wright H, 2 Wright N3, 11 Wright HA2, 1 Wright E.

Among the airplanes completed during July was a special DH4B1 for General Patrick. Lieut. Donald G. Duke, of the Office Chief of Air Service, and Mechanic Dale from the Depot, left on July 25 to ferry the General's ship to Bolling Field. This is the second DH4B1 built for General Patrick by the San Antonio Depot. The first one was ferried to Bolling Field by Maj. Frank D. Lackland and Lieut. Edward M. Powers during the month of May.

Flivver Plane Flown from Kelly to McCook Field

Lieut. Donald B. Phillips has flown successfully the small plane designed and built by himself from his station, Kelly Field, Tex., to McCook Field, Dayton, Ohio. This plane, though smaller than a Sperry Messenger, makes better than 100 mi./hr. and carries enough gasoline for ordinary cross-country flights. Lieutenant Phillips hopes to enter this airplane in the International Races.

U. S. NAVAL AVIATION

Torpedo Plane Refueled at Sea

An important demonstration of the progress that has been made in sea-going aviation in the Navy was recently held off the California coast, near San Diego. A Navy torpedo seaplane, piloted by Lieut. Ben. H. Wyatt, U.S.N., was successfully refueled from a destroyer in the open sea, the fuel being passed from ship to plane by means of a hose while the destroyer was rolling twenty degrees. In spite of the rough condition of the water the plane took to the air without difficulty after receiving the gasoline.

This test shows in a convincing manner that the planes of the Navy are capable of taking their place at sea, basing their operations on the surface craft, and is of particular value in this respect in as much as the operation was carried out in a rough sea, with a rolling vessel and a tossing plane. To be of value to the fleet, aircraft must not only possess those rudimentary qualities of airworthiness that all planes must possess, but must also be seaworthy to the extent that they will not be dependent upon surface craft while carrying out missions of their own except during the most unfavorable weather conditions.

The type of plane used by Lieutenant Wyatt in this recent test, the Douglas DT2, has been organized for some time into squadrons, one squadron each of this type forming a part of the aircraft organization of the Scouting Fleet, the Battle Fleet and the Asiatic Fleet. The excellent service that these planes have rendered during the past two years has acted as a spur to further development along the same lines. The result of this development is shown in the seaplane known as the CS2 which recently broke all the world's records for seaplane endurance in the air and distance flown, as well as the world's speed records for seaplanes over distances of 500 km. and over.

While the DT2 type is regarded primarily as a torpedo

Photo Kadel & Herbert

The huge car of the new Zeppelin airship ZR3, built for the United States government, and now undergoing flying and motor tests in Germany

CALENDAR OF AERONAUTICAL EVENTS

Oct. 10-11.	Wichita, Kansas, Air Meet.
Oct. 24-25.	Schneider Cup Race, Baltimore.
Dec. 17.	Twenty-first anniversary of the first successful airplane flight.
Dec. 5-21.	International Aircraft Exposition, Paris, France.

launching plane, it possesses unusual qualities for long range scouting and bombing. This is reflected in the CS2 which has been developed from it, and is known as a "three-purpose" type for the three duties mentioned above.

Naval Air Policy

The Secretary of the Navy has directed the Navy General Board to consider the recent developments in aviation for the purpose of recommending a policy with reference to the development and upkeep of the Navy in its various branches, i.e., submarines, surface ships, and aircraft, with particular reference to the appropriations to be made at the coming session of Congress for these branches of the service. In connection with these investigations the Board will seek information from experienced officers of both the Army and the Navy.

Rear Admiral Moffett will sit with the Board, but not as a member.

The Army's Thanks to the Navy

Secretary of the Navy Wilbur has received the following letter from Secretary of War Weeks thanking him for the Navy's cooperation in the World Flight:

"The officers of the United States Army Air Service have nearly ended their flight around the world. Its successful accomplishment was made possible solely by the combined efforts of all of those who were asked for their aid.

"I desire to express to you and to the officers and men under your command my great appreciation of all that they did to help. Under the most trying circumstances, ably and whole-heartedly, they did their best to bring this flight to a successful conclusion."

Naval Air Orders

Mach. William H. Gage, det. Nav. Air Sta., San Diego, Cal.; to continue treatment, Nav. Hosp., San Diego, Calif.

Lt. Comdr. Stanton L. H. Hazard, det. U.S.S. Patoka; to further treatment and disposition, Nav. Hosp., Wash., D. C.

Ens. Daniel W. Harrigan, det. Nav. Air Sta., Pensacola; to temp. duty Setng. Flt.

Gun. Charles E. Smitherman, det. Nav. Obs., Wash., D. C.; to Bu. of Aero. Navy Dept.

Lieut. Warner K. Bigger, to duty navigating officer U.S.S. Patoka.

Lieut. John S. Farsworth, det. Bu. of Aero., Navy Dept.; to Aircraft Sqd. Setng. Flt.

Where to Fly

CALIFORNIA
Learn to Fly in San Diego—The City of a Thousand Planes
THE RYAN SCHOOL OF AVIATION
Offers ideal flying conditions all seasons. First class facilities and equipment. Opportunity to study latest type planes and construction. Complete flying and ground course at reduced rates for a limited time.

CALIFORNIA
VARNEY FLYING SCHOOL
Established since 1914
SAN MATEO SAN FRANCISCO

ILLINOIS
HEATH AIRPLANE COMPANY, Inc.
Oldest aeronautic establishment in U. S.
Airplane Supplies Flying School
2856 Broadway Chicago

ILLINOIS
PARTRIDGE, Inc.
Aeronautical Instruction
Aero Club of Illinois Field. Chicago, Ill. *Write for Booklet*
Mail Address-- 430 S. Michigan Ave.

ILLINOIS
FLY THEM YOURSELF
Jennies by the hour. Flying Instruction by the hour. Ex-Air Mail Pilots as Instructors. All size Ships and Motors. All year Flying.
YACKEY AIRCRAFT COMPANY
Flying Field, Chicago Air Park, 63rd and Cicero, Chicago, Ill.

ILLINOIS
MID-WEST AIRWAYS CORP.
MONMOUTH, ILL.
One of the four best fields in America
Thorough Flying Instruction Course by experts at lowest rate.
Passenger Flights to Points Near or Far

KANSAS
AVIATION ENGINEERING CO.
Popular Priced Light Airplanes
Flying Instruction and Advanced Shop Course
N. 7th & LINCOLN LAWRENCE, KANSAS
40 mi. from Kansas City on Victory Highway

MARYLAND
THE SKYSYNE CORPORATION
NIGHT & DAY AERIAL ADVERTISING
OFFICE 711 Keyser Bldg. Baltimore
Get our prices FIRST 3 Planes at your order
AIRDROME Logan Field Dundalk, Md.

MISSOURI
NICHOLAS AIRPLANE CO.
LEARN TO FLY WITH US
Canucks, Jennies, and Standard airplanes, parts, motor supplies, passenger carrying, etc. Flying field 1 mile from city.
MARSHALL, MO.

MISSOURI
ROBERTSON AIRCRAFT CORPORATION
Airplanes, Motors, Parts, Supplies; Shops and Hangars
ST. LOUIS FLYING FIELD
ANGLUM, MO.

NEW JERSEY
CHAMBERLIN-ROWE AIRCRAFT CORP.
Aerial Advertising, Photography, Passenger Carrying, and Flight Training
New York Air Terminal Hasbrouck Heights, N. J.

NEW YORK
Curtiss Exhibition Company, Garden City, N. Y.
Flying Fields—Garden City, Buffalo, N. Y.; Dallas, Tex.; Miami, Fla. Complete flying service including schools, aerial photography, passenger and fast cross country transportation to any point. *Machines presented to students who take flying course.*
WRITE FOR BOOKLET

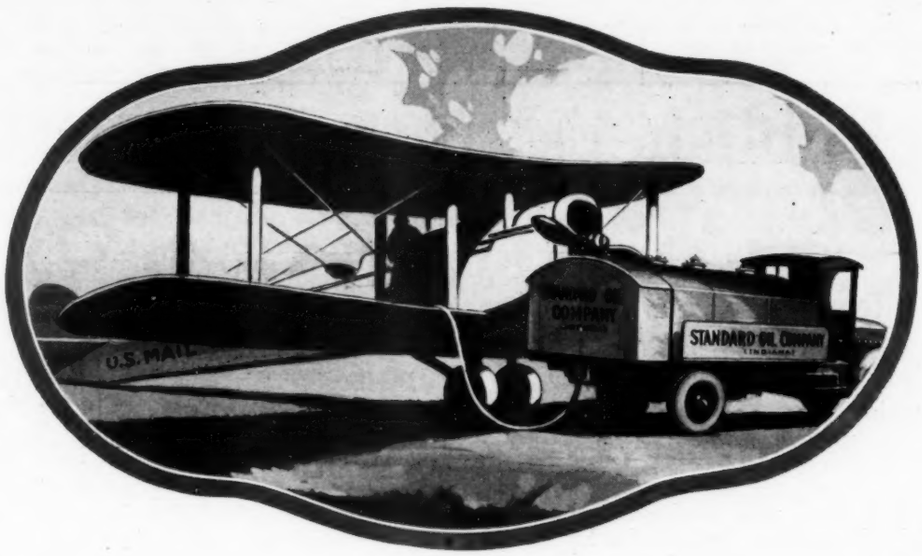
NEW YORK
PORT WASHINGTON, LONG ISLAND
FLYING BOAT SCHOOL
Clifford Webster—Instructor
Curtiss Metropolitan Airplane Co., Inc.

OHIO
AKRON-CLEVELAND
Flying School for students in Aviation. "Pay as you Learn."
Modern WACO Plane with high-lift wings.
Passenger Rides Advertising Photography
STOW AVIATION FIELD
Stop 53 Akron-Kent-Ravenna Car line, Rt. 1, Cuyahoga Falls, Ohio.
Hangars Supplies 6 mi. northeast of Akron.

OHIO
DAYTON, OHIO
Supplies, Hangars, Shops and Field 1 Mile from Dayton limits.
JOHNSON AIRPLANE & SUPPLY CO.

PENNSYLVANIA
ESSINGTON SCHOOL OF AVIATION
Established 1915 Frank Mills, pilot
FLYING BOATS, SEAPLANES, AND SPARES
ESSINGTON (just west of Philadelphia), PA.

TEXAS
SAN ANTONIO AVIATION & MOTOR SCHOOL
MUNICIPAL FIELD
South of Town between two Government Fields
AIRPLANES, ENGINES, PARTS, SUPPLIES, SHOPS, HANGARS
City Office, 509 Navarro Street San Antonio, Texas



Our Products *in high* Favor with Flyers

IN aviation, one achievement has followed on the heels of another with such rapidity that the unbelievable of a decade ago has become the commonplace of today.

The intrepid airman has soared aloft—seven miles above the level of the sea. He has raced through the air at a speed of 266 miles per hour, making the swiftest birds of the air seem sluggards in their leisurely flight. He has waved good-bye to New York at daybreak and glided to a safe landing on the California coast of the Pacific that evening. He has circled the Earth through the thin air above it.

But greater than these achievements is the service he and his fellows are rendering in carrying mails from coast to coast, flying regularly and on schedule, through rains and storms, day and night. They have reduced postal time between Manhattan and the Golden Gate from more than ninety hours to a scant thirty.

It was only as science produced improved craft that such things became possible. Working tirelessly in laboratory and hangar, science solved one problem after another and overcame each obstacle that presented itself.

The Standard Oil Company (Indiana) pioneering in this field, as it has in so many others, set its engineers and refiners to the task of developing and producing the fuels and lubricants which would serve most efficiently. That they were successful is evident, for many aviators use only

Stanolind Aviation Gasoline and Aero Oils

These uniform and dependable aviation products are available at most flying fields throughout the middle west. The list of landing fields at which our aviation gasoline and oils may be had is given in our folder, "Plane Facts." You should ask for this folder and also for our 48-page book, "Aircraft Engine Fuels and Oils." Both will be sent free upon request.

STANDARD OIL COMPANY
(INDIANA)

910 S. Michigan Avenue CHICAGO, ILLINOIS

Publisher's News Letter

Of course, the one thought uppermost in the minds of the AVIATION staff is the visit to this country of Charles Grey of *The Aeroplane* of London. The routine of publishing has been broken in a most entertaining way by the interchange of ideas with this distinguished representative of British writers. To refer to Mr. Grey as representing English aeronautics solely would not be doing justice to his broad attitude toward world affairs. Fortunately he interprets these broader views in the terms of aerial possibilities and necessities. It is this manner of treatment that has made his weekly comment in *The Aeroplane* the outstanding editorial material in the aeronautic press of the world. He is being welcomed in the United States by his many friends, some of whom he has known only by correspondence. His impressions which will appear in AVIATION will be of exceptional interest and have a very timely value.

* * * *

There is no one in the aeronautical field who has made as complete a survey of navies and the effect of aircraft on them as Charles Grey. He is a firm believer in the airplane as "the first line of defense," succeeding the navy in this role. Just at a time when the President is considering the part battleships will play in future wars, it is probable that Mr. Grey's contributions to the American press will be read with the greatest interest. Mr. Grey has already asked one question that may cause some heated discussions. Naval officers who have asked the question, "Why should not the navy have its own air service?" have been met with a complementary query, "Why should not the air force have its own navy?" After the first shock of such a novel proposition has been overcome, a more serious consideration will bring out many interesting points, controversial it is admitted, but forward looking in their purpose.

* * * *

Another point that has interested Mr. Grev is what the United States is going to do with all its air records. Europe is looking at our achievements with envious eyes from an engineering standpoint, but when it is learned that these record breaking aircraft are not being used as the basis of a national air fleet wonderment takes the place of envy. While we are discussing the possibilities of aircraft and the role they will play in our national defense, Europe is building airplanes by the thousands. Its air officers are leaders in the molding of public opinion in aerial defense. A timely view of the record situation by Mr. Grey appears elsewhere in this issue.

* * * *

By the time this issue appears the Dayton races and the Annual Convention of the N.A.A. will have been held. The next issue of AVIATION will be devoted exclusively to the races and the issue after will contain an account of the Convention. The races will furnish much material of interest even though no records are broken. Dayton has made the greatest possible effort to give visitors a splendid show.

The Convention of the N.A.A. will be the culmination of a year spent in securing membership. We hear that the 7000 mark is nearly reached, 2000 members coming from St. Joseph, Mo., alone. Such a showing is most encouraging and everyone is looking forward to a third year in the life of the Association with confidence that it will take its place as a factor in our National life.

* * * *

It is very unfortunate that there are to be no international air contests in this country this year. After the hopes of the aeronautical world had been raised to a point of almost certainty, the withdrawals are disheartening to those who have been counting on real rivalry between British, French, Italian and American aircraft. Better luck next year!

* * * *

One of the sad sides of great race meets in aviation as they are at present conducted is the absence of new equipment which is susceptable of advertising. In most industries when such affairs are held, publications receive so much advertising that they can publish creditable issues giving a comprehensive survey of the industry.

As all the races held recently have been sponsored by the government the aircraft industry has not had the incentive to build new airplanes nor engines that they would if the races had been held under European conditions. If the government would hold out as a prize to private constructors the prospect of orders for the development of aircraft which might win in these annual races, a new type of race meet would come into being.

Next year it is to be hoped that some such move will be made and then everyone including the aeronautical press will benefit.

A Suggested National Air Policy

That a National Aviation Policy is needed by the United States is obvious. To get such a policy in concrete form AVIATION *requested several thoughtful friends of aeronautical progress to make suggestive and constructive recommendations. Some of them are given below and will be printed each week with additions, omissions and such other changes as appear to be helpful toward the formulation of a sound national air policy. Readers of* AVIATION *and others can render no greater service to the cause of aeronautical progress than contributing their comments and suggestions.*

GOVERNMENTAL.

A continuing program of aircraft development both governmental and commercial.
A civilian, charged with championing a national air policy, is needed in the Government. **Cabinet*
Aircraft committees in the House and Senate to hold aircraft hearings where civilians as well as government officials can express their opinions. **composed of fliers.*
A detailed aircraft budget for all Governmental Departments, and an annual statement of all expenditures.
An experienced staff of flying officers at the head of all governmental air defense services.
Coordination of all procurement and experimental aircraft work of the government under one agency.
**Co-ordination of the aircraft experimental development of the government leaving procurement to the various branches themselves.*
Limitation of government manufacture to repair of aircraft and specialized work that cannot be done by private firms. **No limitation on experimental construction.*
The elimination of the duplication of aerial functions and facilities by government departments.
A country wide Air Mail system of trunk lines connecting the principal cities of the country. **Retirement law for air mail pilots.*
Establishment of a National Airway System through cooperation of the Federal Government with States and Cities. **A landing field in every large city.*
A national aircraft law that will regulate aviation, administered by practical pilots and experienced aeronautical engineers. **and federal air police.*
Membership of the United States in the International Convention for Air Navigation.
**Increased governmental appropriations for aerial development.*
**Encouragement of aviation rather than subsidy.*

COMMERCIAL AIRCRAFT OPERATION.

Creation of commercial air lines by private enterprise or government subsidy.
Encouragement of participation by private companies in aircraft races and competitions.
Encouragement of the training of pilots by civilian schools.
Creating an Esprit de Corps among flying men all over the country by frequent gatherings at aviation meets.
**Encouragement of safe and sane flying.*
**A continuing organization, including representatives of all important points of view in aeronautics, for the discussion of standards for aeronautics where standardization is desirable.*

INDUSTRIAL AIRCRAFT CONSTRUCTION.

Recognition that a sound aeronautical industry is a prime necessity of our National Defense.
An active industrial association that will coordinate the aircraft industry and defend it from attack.
Encouragement of the designing of new types of aircraft by manufacturers by allowing them to retain their proprietory rights.
Concentration of manufacturing firms on specialized types of army and navy aircraft. **When production demands are heavy.*
Encouragement of research by constructors, universities and other agencies as well as by the government.
Encouragement of an annual design competition for commercial aircraft.

CIVILIAN.

A national aeronautical organization composed of public spirited citizens that will take a strong position of leadership on national aeronautical policy. **Unification of all aeronautical organizations into one national association with chapters in all cities and towns.*
An Annual Aviation Week during which the country will think of aerial progress. **52 such weeks.*
The formation of local aero clubs by fliers for the purpose of stimulating flying in all localities.
Encouraging the public to fly and patronize the air mail and transport facilities.
**The encouragement of gliding and soaring contests, especially interscholastic.*

*Suggested changes.

The Aircraft Service Directory

WHERE TO PROCURE EQUIPMENT AND SERVICES

Earth Inductor Compass

PIONEER INSTRUMENT COMPANY
MAIN OFFICE AND FACTORY BROOKLYN NEW YORK
WASHINGTON 441 STAR BUILDING
PARIS 87 BOULEVARD SAINT MICHEL
SAN FRANCISCO 15 SPEAR STREET

JULY 1909 -- 15 YEARS AGO
Bleriot made first flight across the English Channel.
During this pioneer period Hamilton carved propellers by hand.
Today—the Channel is crossed frequently daily.
Today—Hamilton Propellers are manufactured in quantities in the most complete and only exclusive propeller plant in America.
Get our new low prices now.
Hamilton Aero Mfg. Co., Milwaukee, Wis.

We Carry a Large Stock of New and Used Airplanes, Motors and Supplies, and have on hand New JN4D's in original crates at $1,250; Used JN4D's in excellent condition all ready to take off, $750; OX5 Hammondsports complete, crated, $300; Canuck Uppers $50; New 26 x 4 Wheels $4.50; New 26 x 4 Casings $4.50; Slightly Used Casings $3; New Tubes $2; Altimeters, all makes, $6; Tachometers, all makes, $6; New JN4D Landing Gears, complete, $60; Copper Tipped Toothpick Propellers, $18; New JN4D Cowling, right $13, left $12; New Spark Plugs 25c, or in dozen lots $2.40; Sterling Silver Bar Pin with safety catch $1. Prompt service on orders. WALLACE AERO CO., Bettendorf, Iowa

LUDINGTON EXHIBITION COMPANY
Sport Farman Ships
Aerial Taxi Service
Exhibition Flying
Office: 810 Atlantic Bldg. PHILADELPHIA
Flying from field of G. S. Ireland PINE VALLEY, N. J.

—PETREL MODEL FIVE—
—Super-Performance In the 3 Seater Class—
—Seaplane or Landplane to Suit Your desires—
—Air Cooled or Water Cooled Motors—
Details on Models Four & Five gladly furnished on request
HUFF DALAND AERO CORPORATION
OGDENSBURG, N. Y.

NEW HS2L FLYING BOATS
in original crates
AND MF BOATS
$600.00
GULF COAST AIRLINE
515 Whitney-Central Bldg. New Orleans, La.

Brand New LIBERTY Motors
High compression army type, with latest Air Service specification improvements. Open to any inspection. Only Liberty Motors of this description and quality obtainable at the present time.
NETHERLANDS AIRCRAFT MFG. CO.
No. 286 Fifth Ave. New York City

Airplanes, Flying Boats, Motors and Supplies. Parts for JN4D Canuck, J-1 Standard, OX5, OXX6 Hispano and Liberty. Fireworks:—Spectacular Night Plane Display $48.; Flash Bombs, good for day or night $4.; Flag Bombs $3.75; huge Smoke Trail $3.50. Non-shatterable Goggles:—NAK Wide-vision $4.85 or Jumbo $3.50. New 26 x 4 Cord Casing $4.; Slightly Used Casing $3.; Moderately Used $2.; New Tubes $2.; Altimeter $5. JN4D or J-1 Gas Tank Gauge $5.; Rotary Map Case—Rotate as Trip Progresses $3.50. JN4D Gas Tank with Gauge $15. Special:—150 H.P. Hispano Motored 3-place Standard, fair shape, $1050.
716 West Superior FLOYD J. LOGAN Cleveland, Ohio

New SEAGULLS $2600.00, New K6 ORIOLES $2200.00, New JN4Ds $1000.00, STANDARD without motor $600.00, Used STANDARD K6 three-seater $1500.00, Used JN4Ds $400.00 and up, Used OX5 motors $50.00 and up, New OX5 motors $175.00, Used K6 motors $250.00 and up, New K6 motors $1000.00.
Before purchasing spare parts get our prices.
G. S. IRELAND
CURTISS FLYING FIELD GARDEN CITY, N. Y.

PARAGON PROPELLERS
BETTER THAN EVER
American Propeller & Mf'g. Co.
Baltimore, Maryland

OX5 STANDARDS — $625.00
READY FOR DELIVERY: ASSEMBLED & TEST-FLOWN
STANDARD J-1 WINGS, CURTISS & LAWRENCE ENGINES;
COMPLETE STOCK OX5 PARTS, RADIATORS & ACCESSORIES
— WRITE FOR PRICE LISTS —
TIPS & SMITH
P. O. Box 153 (1505 Washington Ave.) HOUSTON, TEXAS

HAROLD EVANS HARTNEY
AVIATION CONSULTANT
528 Transportation Building
Washington, D. C.

FOR SALE
2 New H-16's with 4 Eagle VIII Rolls Royce engines complete, less propellers and radiators, unassembled, at Curtiss Flying Field, Mineola, L. I.
Curtiss Aeroplane Export Corp.
52 Vanderbilt Avenue New York City

EVERYTHING FOR AIRCRAFT
Best Acetate or Nitrate Dope, gal., $2.50. Resistal Goggles, pair, $3.00. OX5 Engine, in Fine Shape, $125.00. Spark Plugs, each, $.25. Spar Varnish, gal., $5.00. HO Light Motor, 12-15 hp., 36 lbs., Price Reduced to $375.00. Blueprint of 75 m.p.h. Aerodrive Sled, $.50. Aerodrive Sled Complete, $495.00. Spruce, Steel, Aluminum, Plywood.
State Specific Needs
Ostergaard Aircraft 4269 N. Narragansett, Chicago

AIRCRAFT SERVICE DIRECTORY

CONTINUED

COMMERCIAL AIRPLANES
THAT ARE PAYING PROPOSITIONS
Three and five place machines
Hiso motors and parts. Standard parts and equipment.
Write for catalog.
LINCOLN STANDARD AIRCRAFT CORP.
LINCOLN, NEBR.

WRITE FOR PRICES ON COMPLETE UNITS OR PARTS FOR
CANUCK and JN planes
HS2L flying boats
OX5, OXX6 and Liberty motors
ERICSON AIRCRAFT LIMITED
120 KING ST. E. TORONTO, CANADA

LIBERTY "12" AVIATION ENGINE PARTS
ASSEMBLIES, SPECIAL EQUIPMENT AND TOOLS ARE CARRIED IN OUR STOCK ROOMS FOR IMMEDIATE DELIVERY
JOHNSON MOTOR PRODUCTS INC.
518-522 WEST 57TH STREET NEW YORK, N. Y., U. S. A.

Yackey Aircraft Co., 818 Desplaines Ave., Forest Park, Ill.
S.V.A. Dual control Liberty 6 motor, $1250.00. Used JN4-D, $350.00 and up. Used Canuck, $425.00 and up. Rebuilt Canucks, $700.00 and up. New Canuck, $1150.00. 39B Aeromarine Land or water, $575.00. C6 Standard, New wings overhauled motor, $1050.00. Lincoln Standard five placed fair condition, $1200.00. 4 placed DH9 less motor, new covers, $450.00. 3 placed Avroe 110 Le Rhone new, $950.00. 3 placed Laird OX5, good shape, $1275.00. TM Scouts without motor S4C new, $450.00. OX5 Yackey Sport 2 placed T.M., $1475.00. 5 placed Breguets, Renault motor, $4750.00. Parts for Avroes, T.M.'s Breguets, S.V.A.'s. New Shock cord guaranteed—Resistal Goggles. Write for new price list.

CLASSIFIED ADVERTISING

10 Cents a word, minimum charge $2.50, payable in advance. Address replies to box numbers, care AVIATION, 225 Fourth Ave., New York.

Stub proof gears for Liberty Motors. New, of the latest type, $75.00 a complete set. Immediate delivery from stock. Box 302, AVIATION

WANTED—Hispano Motors, model E or I. Prefer new American built. Also want parts, tools, starting cranks, pusher propellers for Hispanos. Give complete details and lowest cash price in first letter. Box 308, AVIATION.

WANTED—Brand new MF boats. Must be complete except motor. Give full particulars and lowest cash price F.O.B. Box 309, AVIATION.

An experienced flyer to fly a new OXX6 Standard on 50-50 basis. Going South this winter. Marie Meyer, Box 215, Macon, Mo.

Almost new Jennie with new OXX6, 100 hp. motor and D.H. wheels for $975.00. Will give instruction. Tony Amrhein, 120 College Street, Peoria, Ill.

Army Surplus Airplanes and Supplies
Standard J1—OX5, OXX6, and Hispano 150 motored, $750. Curtiss JN4D—OX5 motored, new and used, $400. Avro and Thomas Morse Scouts, new and used.
Motors, Hispano 150, Hispano 220, Curtiss OX5 and OXX6.
Wings, single or sets—Standard, Curtiss JN4, or Canuck. Special bargain tail units; Curtiss JN4 and Canuck rudders, $4. Propellers, parts, dope, linen, tires, wheels, tubes—immediate shipment. Resistal goggles, $3; special price larger orders.
Price List on Request
Marvin A. Northrop, 200 Builders Exchange, Minneapolis, Minn.

BELLANCA

6 Seater with 90 hp. OX5
8 Seater with Hispano
2 Seater with motor cycle engine
COLUMBIA AIRCRAFT CORPORATION
FARMINGDALE, L. I., N. Y.

NEW YORK UNIVERSITY

DAY COURSES begin Sept. 24, 1924. For information, address Dean Charles H. Snow, New York University, University Heights, New York, N. Y.

EVENING COURSES begin Sept. 29, 1924. For information, address Dr. Hazen G. Tyler, New York University, University Heights, New York, N. Y.

FOR SALE—Two Loening Air Yachts (400 h.p. Liberty Motors)—one of these machines has flown 120 hours, price complete with electric starter, Four Thousand Dollars ($4000.00).

The other Air Yacht has only had about 30 hours of flying, and is in practically brand new condition; price Seven Thousand Dollars ($7000.00).

These machines are at present disassembled at Hangar, but on deposit of One Thousand Dollars ($1000.00) will be assembled and made ready to fly with all launching facilities, etc., available.

Address all inquiries to—**New York-Newport Air Service, Inc.,** 31st Street and East River, New York City.

AN EXCEPTIONAL FLYING OUTFIT AT SACRIFICE
Fur-lined black leather flying helmet. Fleece-lined black leather flying suit, cost at Wanamaker's between $95 and $100. Size for man 5 ft. 10 or 11 in. Worn twice at most. Fleece-lined tan leather flying gloves. Fleece-lined tan overshoes, size 8½. Dark brown shoes, leather lacings, mocassin style. High cordovan boots, size 8½, worn once, cost $30 at Rogers, Peet Co. 1 pr. unbreakable goggles. Cost $10 at Spauldings.
This outfit is practically as good as new and the best offer received within the next two weeks will take it.
BOX 310 AVIATION

Thomas Morse wings, brand new $15.00 each, suitable for light airplane. Air Transport Equipment, Inc., Long Island City, N. Y.

FOR SALE—200 hp. Hall-Scott L-6 Motor, had less than 50 hours, $600.00. John Montyo, 2068 Perkins Ave., Long Beach, Calif.

Fred Givens formerly superintendent of the Cox-Klemin Company is requested to communicate with AVIATION.

Advertisements inserted regularly in AVIATION'S Aircraft Service Directory pay for themselves many times over.

Airplanes That you can use now and make money with

Curtiss JN4D in original crate	$1300.00
Curtiss JN4D used excellent condition	800.00
Curtiss 3 pass. semi-cabin OX5 motor used one season	850.00
Curtiss 3 pass. semi-cabin OXX6 motor 3000 feet in 10 min. with full load guaranteed	1650.00
Laird Swallow 3 pass. OX5 motor in excellent condition	900.00
1924 Lincoln Standard 5 pass. in excellent condition	2750.00
K-6 Oriole 3 pass. brand new	1500.00
OX5 Oriole 2 pass. almost new	850.00

These planes are priced for immediate sale and are subject to change in price without notice. A 25% deposit will hold any of these planes 30 days. These planes can be inspected at our Dayton Field.

JOHNSON AIRPLANE & SUPPLY COMPANY
DAYTON, OHIO

Largest Dealers in Aeronautical Equipment in the Country. Write for our Latest Issue of Special Price Lists Stating What You Are Chiefly Interested In.

NATIONAL AIR CONGRESS

WICHITA, KANSAS

OCTOBER 10 and 11, 1924

3 events for Army and Navy entries 7 events for Commercial Ships of all types

$10,000.00 in Cash Prizes and Many Beautiful Trophies

This Air Meet is Educational in its scope and is for the promotion of Aeronautics in general and Commercial Flying in particular.

EFFICIENCY, ENDURANCE, SPEED and STUNTS

Everything in the calendar of Flying will be on at Wichita.

This Air Meet is sanctioned by the N.A.A. and held under auspices of the Wichita Chapter. Entries now open for all events in THE BIGGEST FLYING SHOW of the year in the MIDDLEWEST.

Write or wire for List of Events, and Entry blanks to

HOWARD F. WEHRLE, Room 226 LASSEN HOTEL, WICHITA, KANSAS

WANTED: AVIATORS WITH AEROPLANES, WHO CAN FLY AT NIGHT.

Due to the large amount of contracts we have received from National Advertisers, we can use the services of a number of aviators who can do night flying furnishing their own aeroplane, give length and width of lower wing, horsepower, price wanted per flight, and all other details. We furnish advertising device.

NIGHT AERO ADVERTISING CORP., — 552-SEVENTH AVE., NEW YORK

Our advertising device is fully covered by U. S. Patents No. 1,474,682, No. 1,505,714, No. 1,506,638, No. 1,509,046, with other patents pending.

A NEW **WACO** FOR 1925

The simple announcement of a new, still better

***WACO* COMMERCIAL and PLEASURE AIRPLANE for 1925**

is of great importance to aviation

Watch for it

ADVANCE AIRCRAFT COMPANY

TROY, OHIO

A Plan is Outlined in Circular Number 24

Covering the purchase of aircraft on monthly installments. Surplus army aeroplanes of following types are offered — Curtiss J N 4 D Canuck, Thomas Morse Avro and Standard J-1 fitted with Hispano Suiza, Curtiss O X 5, O X X 6 and LeRhone motors. Write for this circular it will interest you.

MARVIN A. NORTHROP

200 Builders Exchange

MINNEAPOLIS, MINN.

DOPES

PIGMENTED DOPES

VARNISHES ENAMELS

»TITANINE«

MADE BY

TITANINE, Inc.

UNION, UNION COUNTY, N. J.

Contractors to U. S. Government

BALL BEARINGS

The Highest Expression of the Bearing Principle

SKF

INDUSTRIES, Inc.

165 BROADWAY

NEW YORK

SKAYEF **HESS-BRIGHT**

JEFFERY'S WATERPROOF LIQUID MARINE GLUE

Was used in the Construction of the Floats of the

AMERICAN SEAPLANES

during the

AROUND THE WORLD FLIGHT

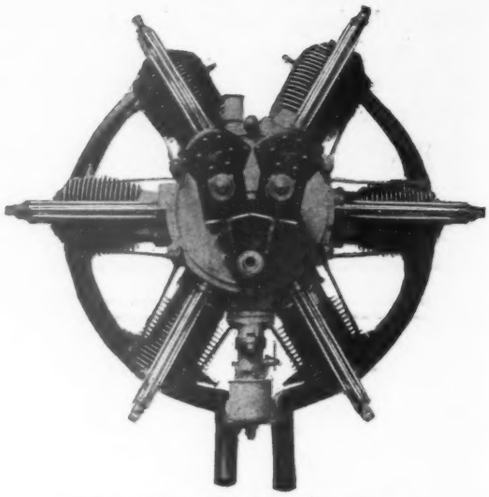
Send for Booklet

"Seaplane Float Construction"

L. W. FERDINAND & CO.

153 Kneeland St., Boston, Mass.

Anzani Aircraft Motors



Type 6A3 70/80 H.P. Dual Ignition

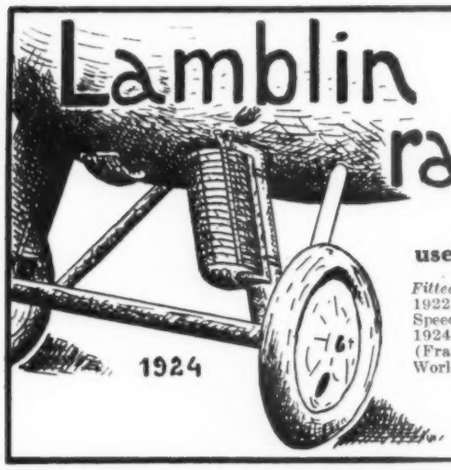
Other 1924 Types from 10 to 120 H.P. for commercial airplanes and moto-aviettes.

WALLACE KELLETT CO. INC.

Atlantic Building **Philadelphia.**

Lamblin radiators

1922



used all over the world **on more than 10,000 aircraft**

Fitted to the winners of the following events: Gordon Bennett Cup; Deutsch Cup, 1920, 1921, 1922; Pulitzer Trophy, 1921; Circuit of Brescia; London Aerial Derby, 1922, 1923; the British Speed Record; Grand Cup of Italy, 1921. 1922; Lamblin Cup, 1923, 1924; Zenith Cup, 1923, 1924; Olympic Games Cup, Antwerp; Morane Challenge; Grand Prize of the Aero Club de l'Ouest (France); Grand Prize for Transport Planes (France), 1923, 1924; World Duration Record; World Speed over Distance Records (Airplanes and Seaplanes); World Altitude Record.

For particulars apply to

ETABLISSEMENTS LAMBLIN 36, BOULEVARD BOURDON, NEUILLY-SUR-SEINE, FRANCE

THE HIGHEST GRADE OF NEW FLYING BOATS OF HS2L TYPE ON THE MARKET

with or without power plant, completely assembled ready for flight, or packed in boxes ready for shipment, at our Baltimore warehouse

—Guaranteed 100% Complete—

For purchaser of unassembled boats, liberal space for assembly will be allowed free of charge

TERMS CAN BE ARRANGED

Write Department E

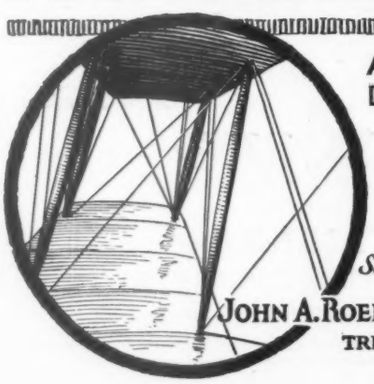
or

come down and look them over

AMERICAN AIRCRAFT INC.

BOX 104, STATION F **BALTIMORE, MD.**

ROEBLING



AIRCRAFT PRODUCTS

WIRE CORD
STRAND
THIMBLES
FERRULES

Send for Catalog A-484

JOHN A. ROEBLING'S SONS CO.

TRENTON, N.J., U.S.A.

MARTIN U.S.A.

Trade Mark

Back of It All

IT is comparatively easy to demonstrate to the layman the remarkable advances being made in the conquest of the air. It is being done every day. Incredible records of speed, altitude flights to the ceiling-of-the-world, fascinating exhibitions of sky-writing, marvelous examples of aerial photography--countless incidents of the most dramatic quality are impressing upon the public the bewildering extent of the airplane's potential utility.

To dramatize the power of engineering which stands back of it all is far more difficult. The infinite pains of manufacturing to micrometer measurements become interesting only in sensational demonstrations of the precision they insure. Since 1909, engineering design and shop practice in the Martin plant have established standards for the industry -- standards of ever increasing perfection.

THE GLENN L. MARTIN COMPANY
CLEVELAND

Builders of Quality Aircraft since 1909

Announcement

We have purchased the entire stock of Standard J. 1. Airplanes, New OX5 Motors and Spare parts which was owned by the Curtiss Co. This stock consisted of about 450 complete ships, 126 new motors and an enormous stock of spare parts.

We are ready to sell you one or a car load, with or without motor, set up or knocked down for shipment.

To those operators and dealers who now own Standard ships or are interested in buying them you can get on our mailing list and will find prices that will amaze you by

Sending Us Your Name and Address

This sale takes the last quantity of Standards in the country and is the only source of supply of this class of ships and spare parts in the U. S.

STANDARD J. 1. AIRPLANE CO.

HOUSTON, TEXAS Box 195

WAREHOUSE AND FIELD
Corner Calhoun & Munger St.

A few early volumes of

AVIATION

for sale at a reduced price for a limited time only.

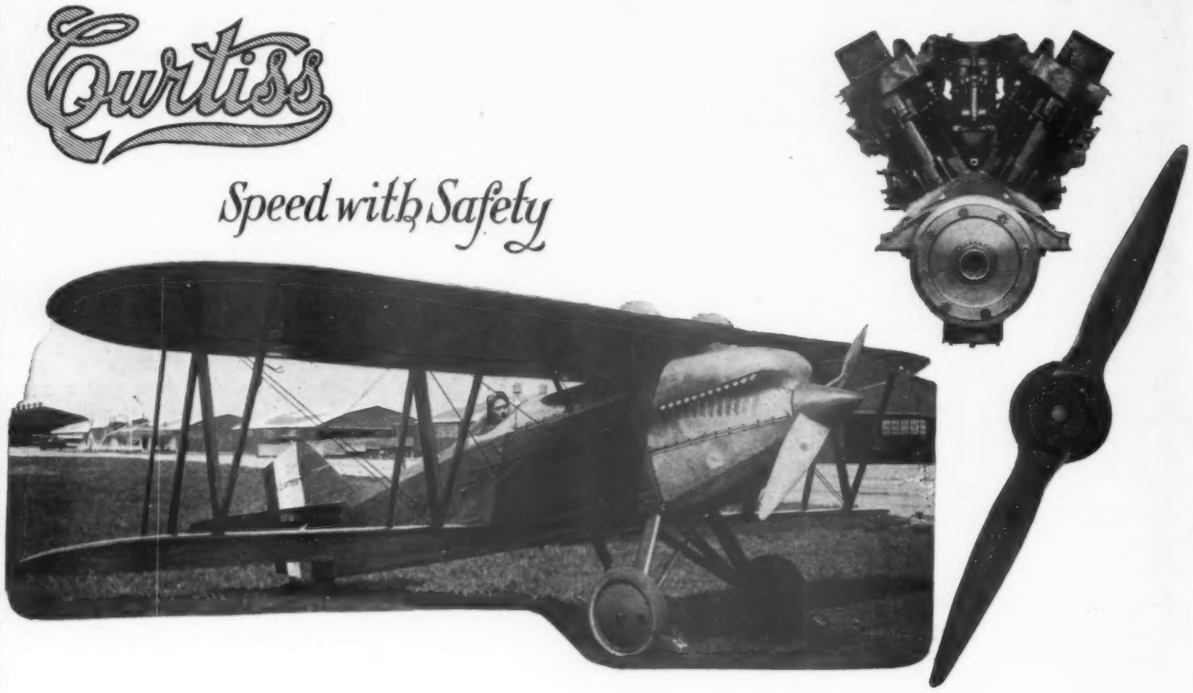
WE have a limited number of unbound volumes covering the period from August 1, 1916, to date, containing in every issue aeronautical engineering information of fundamental value. These volumes comprise a complete record of the science of aviation during the period of the great development of aerial warfare.

Send for prices immediately as this offer is for a limited time only

GARDNER PUBLISHING CO., INC.
225 FOURTH AVE., NEW YORK

Curtiss

Speed with Safety



LIEUT. MAUGHAN SUCCEEDED WITH THIS COMBINATION

When the Army Air Service decided to demonstrate to the world the mobility of American aircraft, they chose a Curtiss product.

Lieutenant Maughan's recent flight from New York to San Francisco between the hours of dawn and dusk was accomplished in a Curtiss designed and built Pursuit plane equipped with a Curtiss D-12 motor and a Curtiss-Reed one-piece duralumin propeller.

This threefold combination is indeed hard to beat, as each one preeminently leads its field. The plane of Curtiss design includes all the essentials necessary for high speed racing and high performance military aircraft, among which are:

Extreme maneuverability with comfort and visibility to the pilot at all times;

Multispar cellular wings, with covering of spruce planking instead of fabric—shrapnel proof—no cloth covering to tear off;

Steel tubular fuselage with a readily detachable engine mounting;

Split axle type of landing chassis, in which shocks are absorbed by rubber discs acting in compression. This chassis, although but a few months old, has already been adopted as the standard type.

Quickly detachable wing or cellular radiators eliminating resistance heretofore required for cooling;

Oil temperature regulator, which permits instantaneous starting, even in the coldest weather, and then maintains the proper temperature of the oil while in flight.

The Curtiss D-12 motor, in addition to holding all the speed records of the world, now has to its credit Lieutenant Maughan's achievement. On account of the small frontal area of the D-12 for the first time the size of the pilot rather than the engine controls the size of the fuselage.

The Curtiss-Reed one-piece duralumin propeller, the safest and most efficient propeller ever tested, is unaffected by hail or rain, tall grass, small particles, age or climatic conditions. It too has done its part in winning these high speed and endurance tests.

The Curtiss Pursuit as a fighting unit has no competitor in the world. It has set new standards for plane, motor, and propeller.

On September 3rd Lieutenant R. C. Moffatt flew from Boston to New York in 58 minutes!

CURTISS AEROPLANE & MOTOR COMPANY, Inc.

GARDEN CITY, L. I. **BUFFALO, N. Y.**